

IUCN Pakistan Programme

**Northern Areas Strategy for
Sustainable Development**

Background Paper

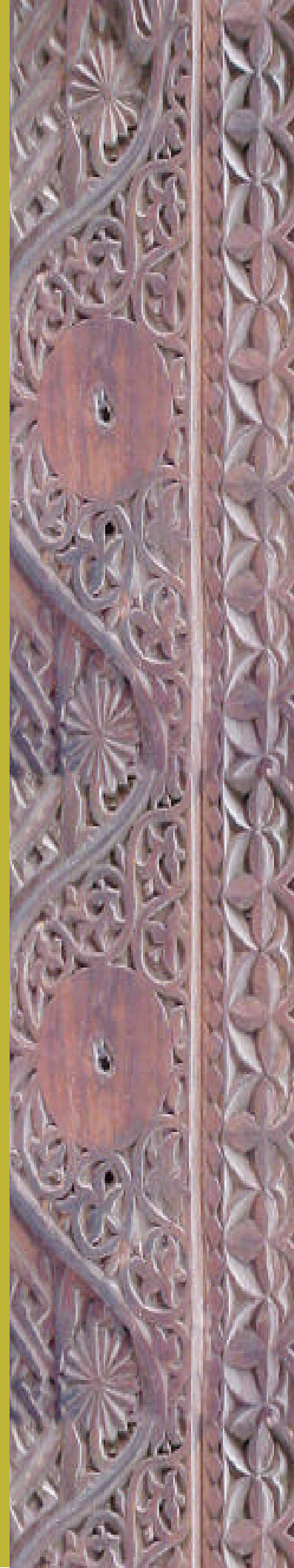
Forestry

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LIST OF ACRONYMS

AJK	Azad Jammu and Kashmir
AKDN	Aga Khan Development Network
AKRSP	Aga Khan Rural Support Programme
BACIP	Building and Construction Improvement Programme
BASDO	Belour Advisory and Social Development Organization
BNN	Baltistan NGOs Network
CFM	Collaborative Forest Management
CGI	Corrugated iron sheet
CITES	Convention on International Trade in Endangered Species of Flora and Fauna
DFO	Divisional Forest Officer
DMT	Dashken, Mushken Turbuling
FD	Forest Department
FDf	Forest Development Fund
FSMP	Forestry Sector Master Plan
GEF	Global Environmental Facility
GoP	Government of Pakistan
Ha	Hectare
HQ	Head Quarters
ICIMOD	International Centre for Integrated Mountain Development, Kathmandu
IUCN	The World Conservation Union
JFM	Joint Forest Management
KANA	Ministry of Kashmir Affairs and Northern Areas
KARINA	Karakoram Agricultural Institute, Northern Areas.
KKH	Karakoram Highway
KM	Kilo Meter
LoC	Line of Control
MACP	Mountain Area Conservancy Project
MoELG&RD	Ministry of Environment, Local Government and Rural Development
NA	Northern Areas
NAA&LD	Northern Areas Agriculture and Livestock Department
NACC&I	Northern Areas Chamber of Commerce and Industry
NACS	Northern Areas Conservation Strategy
NACS-SP	Northern Areas Conservation Strategy Support Project
NAFD	Northern Areas Forest Department
NALC	Northern Areas Legislative Council
NAP&DD	Northern Areas Planning and Development Department
NASSD	Northern Areas Strategy for Sustainable Development

NDO	Naunehal Development Organization
NGO	Non Government Organization
NGOs	Non Government Organizations
NP	National Park
NTFP	Non Timber Forest Product
NWFP	North West Frontier Province
PA	Protected Area
PARC	Pakistan Agricultural Research Council
PAs	Protected Areas
PF	Protected Forest under Pakistan Forest Act, 1927
PFI	Pakistan Forest Institute
PWD	Public Works Department
R&D	Research and Development
RF	Reserved Forest under Pakistan Forest Act, 1927
RFO	Range Forest Officer
RPO	Regional Programme Office
SDFO	Sub-Divisional Forest Officer
SDFO-DT	Sub-Divisional Forest Officer-Darel / Tangir
SKB	Sakayo Karbating Basinga (FAIZ)
Spp.	Species
SRO	Statutory Regulatory Order
TV	Television
UNDP	United Nation Development Programme
VOs	Village Organizations
WHC	World Heritage Convention
WHS	World Heritage Site
WWF-P	World Wide Fund for Nature Pakistan
ZSD	Zoological Survey Department

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FOREWORD

The Northern Areas have a unique and critical role to play in the sustainable development of Pakistan. Although they span a relatively small geographical area, the Northern Areas serve as a vital catchment for the Indus River, upon which a majority of Pakistan's irrigated agriculture and hydroelectricity depends. The Northern Areas also contain the nation's most important natural forests, extensive mineral reserves, and a wealth of biodiversity. Dramatic scenery, some of the world's highest mountains, and a rich cultural and archaeological heritage make the Northern Areas one of the most visited tourist destinations in the country.

Over the last several decades, however, many of the Northern Areas' natural resources have come under increasing pressure, as a result of a growing human population and the opening of the Karakoram Highway. At the same time, it has become increasingly recognised that the isolated nature of many of the region's communities, coupled with the Northern Areas' high-altitude and fragile environment, poses special constraints and challenges to development. Perhaps more so than in any other part of Pakistan, there is a need in the Northern Areas to ensure that social and environmental considerations are fully integrated into the development process.

In response to these concerns, the Northern Areas Administration began the preparation of a Northern Areas Strategy for Sustainable Development in 1999, with the financial assistance of the Swiss Agency for Development and Cooperation, and the Norwegian Agency for Development Cooperation; technical support has been provided by IUCN–The World Conservation Union. The Strategy addresses a broad range of social, economic and environmental issues, and seeks to provide a comprehensive policy framework for the sustainable development of the region. It responds directly to the provisions and recommendations of the National Conservation Strategy, adopted by the Government of Pakistan in 1992.

In parallel, *The State of the Environment and Development in the Northern Areas* summarises in a single volume the key information gathered during the preparation of the NASSD. It is the first report of its kind to be produced for the Northern Areas, which provides a succinct, up-to-date and readily accessible analysis of the status of the most important environment and development sectors in the Northern Areas, including information on major trends and issues, the responses taken by both government and civil society to date, and strategic options for the future. It also provides a baseline against which future change can be measured and establishes the context and foundations for the Northern Areas Strategy for Sustainable Development.

During early consultations at the tehsil level, and with key governmental and non-governmental organizations 16 areas of intervention were identified as being critical for the NASSD. These include sectors like: water; agriculture; forestry; biodiversity; rangelands and livestock; the private sector; energy; urban

environment; and cultural heritage and sustainable tourism. In addition, some crosscutting themes were identified as crucial to each sector, including population, poverty and environment; communication for sustainable development; environmental education; NGOs; gender, environment and development; environmental health; and governance.

To address the needs of each of these areas, basic information was gathered through consultations and literature reviews. This data was analysed through background papers commissioned on each of the sectors and themes identified. The draft of each paper was shared with the larger community of stakeholders of the NASSD as well as experts in the relevant field of knowledge.

The papers follow a similar format: analysis of the current situation; issues; past and present initiatives in the sectors and thematic areas along with the lessons learnt; stakeholders; and recommended policy and action measures. The authors have also addressed cross-sectoral linkages and environmental concerns for the sake of more integration in planning for sustainable development.

There were constraints to developing these Background Papers and in some cases these hurdles were only partially overcome. These included the fragmented and scattered nature of information, the prevalent culture of not sharing information, contradictory and unreliable data, lack of thinking on cross-sectoral linkages and integrated planning, and lack of expertise in developing linkages with the environment.

Parts of the information of the papers were then incorporated into the State of the Environment and Development (SoED) and the main strategy, i.e., NASSD. However, since the Papers contain a wealth of extremely useful information, a decision was taken to produce a series of NASSD Background Papers.

Considering the need and importance of timely sharing information with the stakeholders, these papers are being produced without extensive editing. The authors have sole responsibility for the views expressed and data presented.

EXECUTIVE SUMMARY

This paper has been developed as a background paper for the report 'State of the Environment in Northern Areas' and the 'Northern Areas Sustainable Development Strategy'.

There are natural limitations to the spread of forest cover in the Northern Areas due to large areas under glaciers, snow cover or alpine meadows; low rain fall and extreme climate: and precipitous slopes. However, there are important natural forests and substantial tree planting on farmlands. The natural forests are montane dry sub tropical, montane dry temperate coniferous and broad-leaved and sub alpine. All natural forests in Chilas, Darel and Tangir in Diamir District are owned by the local communities and are called 'Private Forests'. The Northern Areas Forest Department (NAFD) manages these forests. Gilgit Private Forests Regulation (1970) applies to these. These forests have been degraded due to commercial logging that was regulated under three working schemes. The contractors, NAFD and the communities have conveniently neglected the regeneration of the areas felled. A draft-working plan of these forests has been developed by NAFD recently. Although, the plan envisages the participation of the local communities in the management of these forests, it falls far short of the requirement for their sustainable management, especially for the requirement of individual forests. It is important that planning and management of individual forests is undertaken by local communities with the advice, support and monitoring of NAFD. The collective treatment of all private forests is not likely to bring about any improvement that is required even to arrest their degradation and deforestation, what to talk of their restoration.

The protected forests that are designated under the Pakistan Forest Act (1927) are found in Astore sub division of Diamir District, and parts of Skardu, Gilgit and Ghizar Districts. Only scrub vegetation grows in Ghanche District, mostly comprising of sea-buckthorn and willow species along rivers and nullahs besides scattered and stunted juniper trees on these slopes. These forests are burdened with rights of removal of timber, firewood and other non-wood forest products including grazing and medicinal plants. As a result, these forests are degrading due to exploitation beyond their productive capacities. These forests are confronted with lots of other issues. Management plans of none of these forests have ever been prepared. Yet some of them have been harvested to provide timber for the construction of bridges and government buildings. There are also encroachments of forestlands and occurrence of forest fires. Absence of regeneration and low numbers of young trees are the general concerns regarding the perpetuity of some of these forests. Local communities have a major stake in them but are not involved in their planning and management. If these forests were re-designated as 'Village Forests' under section 28 of the Pakistan Forest Act (1927) involvement of communities and joint forest management would be ensured.

Forest planning, if any, is made in isolation disregarding the need for incorporation the management of biodiversity, protected areas, eco-tourism, watersheds, livestock and grazing and agricultural land. The local communities do not see these

aspects and sectors in separate compartments. Therefore, integrated planning and management of forests has been suggested.

There has been substantial progress in tree planting on farmlands and there is still considerable scope in further boosting it. This is important not only for developing new lands below water channels and on river banks, and for meeting the requirements of fuel wood, fodder and agriculture implements, but also for reducing wood collecting efforts of women as well as decreasing the pressure on the natural forests. Research, ready availability of desired planting stock at nominal cost, capacity building of communities in raising nurseries and planting as well as improvement in marketing of wood would help to boost farm forestry in Northern Areas.

The demand of local communities for wood and grazing on many forests is more than their productive capacities. This would require rationalisation of rights and promotion of substitutes of timber, fuel wood and grazing. But low-income levels and poverty may not allow procurement and use of substitutes. Therefore, interventions regarding alternative sustainable livelihoods have been suggested.

Currently, the policy environment and legal regime are not conducive to adopt various approaches suggested above, in particular involvement of local communities and joint forest management. Suggestions have been made to improve the policy and legal framework.

Other areas that are the subject of discussion in the paper include lack of awareness of the importance of forests resources over a long term by local communities; lack of vision in policy makers and planners; low capacities of key stakeholders including NAFD; lack of coordination between them; and lack of objectivity, accountability and transparency. Suggestions are given to improve the current state of affairs.

There are large gaps in information. The important ones have been identified.

Briefly, the paper has considered and discussed the following:

- m Meeting long-term and Short-term local demands within resource production capacity augmented with alternates of timber, firewood and grazing.
- m Biodiversity – Plants, wildlife, habitats and eco-systems –
- m Forest protected areas - representative samples of eco-systems one each in Darel, Chilas, Tangir, Astore (Rama, Gorais), Basho, Haramosh, Naltar, Yasin)
- m Eco-tourism
- m NTFP – medicinal plants
- m Community involvement in private forests and protected forests. Forest department to be in advisory and support role.
- m Poverty reduction and alternative sustainable livelihoods.
- m Integrated management – fully incorporating livestock grazing, agriculture, eco-tourism in planning and management of forests. Also linking with other development activities.
- m Improving governance - vision, objectivity, capacity, transparency, accountability and round table mechanism.
- m Adequate field investment on per unit basis
- m Training, education and research – NAFD not to develop its own structure and facilities but to link with or contract out to appropriate agencies - in service training courses, short training courses (perversely to be arrange to local institutions)

1. INTRODUCTION

1.1. Salient Features of Northern Areas

As the name suggests Northern Areas are situated in the extreme North of Pakistan bordering with China and Afghanistan. Most of the area consists of rugged mountains, the higher elevations remaining snow covered throughout the year. This area contains concentration of highest peaks in the world, amongst these K2 in Concordia and Nanga Parbat are outstanding. The cold desert is an important source of water for central and southern arid flood plains in Pakistan. The mountains provide opportunity for climbing, trekking and hiking besides being home to forests and important habitats of high altitude plants and animals. The alpine area between tree limit and permanent snow cover is mainly used for summer grazing. Thus the tree cover is now confined to upper dry temperate and sub alpine regions. Natural vegetation from valley floors as well as higher elevations above the settlements has been cleared. However, there has been great progress in tree planting in the (few) urban centres and in almost all cultivated areas.

Population is not high and is concentrated on the valley floors along rivers and streams. The economy is agro-pastoral. Key statistics regarding population, area and land-use are given below:

Population (1998 Census)			Literacy Rate		Per capita income	Poverty
Total	Rural	Urban	Male	Female	Rs. 7,500 per annum	28% ³
870,347 ¹	90% ²	10% ²	40%	25%		

Sources: 1. Population Census 1998; 2. Fuel wood Consumption study by WWF & BACIP;
3. AKRSP Annual reports 1998.

Total Area	Agriculture	Farm Trees*	Natural Forests	Range lands	Glaciers/ snow covered	Unreported Area **	Rivers Lakes, etc.
7,250,000 ¹	57,000 ²	11450*	295,000 ¹	2,100,000 ¹		4,697,000	12,871
		23000 ¹					
Percent 100	0.78						

Source: 1. Forestry Sector Master Plan (Northern Areas) 1992; 2. Agriculture Department NA

* This area is included in agriculture area figures

Notes: ** Unreported areas have not been surveyed for land uses but most of it is inhabitable comprising of glaciers, snow cover and high mountains.

Cattle	Buffaloes	Goats	Sheep	Camels	Horses	Donkeys	Yaks	Mules	Poultry	Total
397,957	6,208	1,047,285	518,082	111	7,903	21,485	1,598	644	609,344	2,610,617

Source: Agricultural Census Organisation, Statistic Division, GoP Report (1998)

The natural limitations of Northern Areas regarding occurrence of natural forests include arid and semiarid climate; most of the scanty precipitation being snow; large glaciated and permanently snow covered areas; and comparatively short growing period and slow growth at high altitudes. Geology, rocks and soils in NA are the other dominant factors that limit the geographical distribution of forests.

The climate of Northern Area is generally dry temperate that means it generally receives very little monsoon, that too in its southeastern fringe. The major source of scanty precipitation is snow and rains during winter and spring. Precipitation is one of the major factors in determining the local perception of climate. The local understanding of the climate is: arid if rainfall is from 80-200mm: semi arid if rainfall is from 200 – 350 mm: and sub humid if it is from 350-500mm, which is the upper limit in Northern Areas. However, sub-alpine, alpine and higher reaches receive considerable snow. The humid westerly winds have considerable effect on the precipitation received in Northern Areas. The statistics regarding climate are given in Annex 1.

The following rock types occur in Northern Areas:

1. Early Mesozoic and late Palaeozoic rocks.
2. Green stone complex of lava, tuff, agglomerate, and Meta-sedimentary and sedimentary rocks.
3. Devonian and Silurian rocks.
4. Mostly quartzite, schist and dolomites, igneous, metamorphic and mafic intrusive rocks.
5. Granite, gneiss, schist and Meta-sedimentary rocks of possibly Precambrian age and intrusions of graniodorites granite, synite and diorite of probably early tertiary age.

Soil formed as a result of disintegration of the existing rocks is loamy and fairly deep on gentle to moderate slopes. On steeper areas and ridges with scanty tree growth, it is shallow with out-crops of parent rocks and parent-weathered material. Generally, forest soils, where tree growth exists, are fertile, porous and also contain humus, though in small quantity. It is however, highly susceptible to erosion, a phenomenon which is taking place incessantly and silently.

1.2. Importance of Forests

Although dry temperate forests are also found in northern parts of NWFP and AJK their extent is small. Thus the natural forests in Northern Areas represent the best examples of dry temperate forest eco-system in Pakistan.

The forests in Northern Areas are important watersheds of valleys below where agriculture is practiced and settlements exist, and Indus River and some of its tributaries. This water is the main stay for agriculture and hydropower for the flood plains in Pakistan. Many species of wild animals and plants depend on these forests. Thus these forests are important for the rich biodiversity in Northern Areas. Some of the species and habitats have national and global significance. Their role as carbon sink like any other long-living trees needs no emphasis.

The natural forests in Northern Areas are an important source of softwood timber for the country. Locally, they provide timber; firewood; torch wood; grazing;

medicinal plants e.g. kuth, (Sassuria, lappa) black cumin; and other non-timber forest products (NTFP) including food (chilghoza, mushrooms, honey, berries of sea buckthorn); and animal products. They have great potential for countryside recreation and eco-tourism in Northern Areas. Forest activities generate employment and help to reduce poverty. Forests also have cultural and religious values. They are a source of income for the communities and government. Forests are God gifted open laboratories of nature for education and research.

1.3. Background and Scope of the Paper

Northern Areas Strategy for Sustainable Development (NASSD) is being formulated, aiming at sustaining and enhancing the well being of the people and eco-systems in Northern Areas. Natural resources have important role in protection of environment and sustainable development. Forests in Northern Areas are an important component of natural resources and thus need to be considered by the NASSD. This paper aims at contributing to the information needed for developing the Report ("State of the Environment in Northern Areas") and identification of key issues and options for addressing them. This will also have its stand-alone value for the Northern Areas Forest Department (NAFD) and other stakeholders in forestry sector. The paper has been developed through participatory approach by involving key stakeholders including the government agencies, civil society organizations, the private sector, academia and media.

This paper confines itself to forests and forestry. The other resources being managed by the forest department such as range lands and biodiversity have been touched upon purely in the context of forests. These and some others e.g. eco-tourism and watershed have been discussed in detail in the relevant background papers.

1.4. Information Gaps

Great difficulty has been experienced in collecting relevant documents and data, the authenticity of which is still doubtful. There are many different statistics floating around in different reports. It was even beyond the capacity of the participants of the post-draft workshop and the subsequent committee formed for the purpose to agree on any figure or to provide addition information. It is important to invest time and resources in collecting authentic information.

Collection of the following data information is important:

- m Forest area coverage in NA and annual / periodic change
- m Data regarding individual protected forests and private forests
- m Associated fauna and other biodiversity in individual private forests and protected forests
- m Local importance of individual forests and socio-economic conditions of the dependant communities
- m Exploitation levels of timber, firewood and other NTFP in individual forests
- m Data regarding the use of alternatives of timber, firewood and grazing (iron girders, doors, windows, CGI sheets, barbed wire, gas cylinders, kerosene oil, electricity for cooking and heating, coal, animal feed etc)
- m Current production and consumption of timber and NTFP and future projections

- m Statistics regarding farm forestry
- m Tourism potential of various individual forests
- m Degraded and Deforested areas available for forest landscape restoration (FLR)
- m Land use plans and FLR plans do not exist
- m Afforestation and forest restoration undertaken / being undertaken through various initiatives and their results.

2. ECOLOGY AND BIODIVERSITY

2.1. Ecological Zones

Low precipitation, great altitudinal range and effect of humid westerly winds have carved out the following five distinct ecological zones in Northern Areas.

2.1.1. Montane Dry Sub Tropical

This zone comprises of lower reaches and southern slopes of mountains especially along Indus, Gilgit and Hunza Rivers especially in southern and central parts of NA. The altitudinal range is between 914 – 1,219 meters. Being at low elevations, these areas do not benefit from humid westerly winds. Only scrub vegetation occurs in this zone. .

2.1.2. Montane Dry Temperate

This zone is located in the southern, central and eastern parts of NA above the dry sub tropical zone and below the sub alpine zone. Its altitudinal range varies from 1219 - 3657 meters. All coniferous and broad-leaved forests in Northern Areas are found in this zone. There is great variation in the composition of vegetation in this zone due to microclimate and other factors.

2.1.3. Montane Dry Northern Scrub

This zone comprises of northern parts of the Northern Areas where scrub vegetation is found but there are no natural forests worth the name, as mentioned in point 1 of floral characteristics of Northern Areas.

2.1.4. Sub Alpine

This is transitional zone between dry temperate zone and alpine zone within altitudinal range from 3657 – 4572 meters. Mainly it supports deciduous broad-leaved trees (birch and willow) with some mixture of high altitude Juniper trees.

2.1.5. Alpine

This zone occurs below permanent snow cover and remains covered with snow during winter. Normally, it occurs between altitudinal ranges from 4572 – 4724 meter. Only grasses, seasonal herbs and small prostrating shrubs are found in this zone. This zone does not support natural forests but provides grazing to livestock during summer and thus, diverts the pressure of grazing from forests during that period.

2.2. Forest Types

Taking lead from the ecological zones mentioned above four forests types are found in Northern Areas.

2.2.1. Montane Sub Tropical Scrub

According to Sheikh M. I. et al (1975) the forests in Northern Areas are found between 750 to 3,900 meters elevation above sea level and are divided into *Dodonaea* scrub, *Monotheca* scrub, *Reptonia* scrub, *Pistacia* scrub and sub-tropical stream bed scrub. According to Ali (2000) Montane Sub-tropical scrub is characterised by *Capparis spinosa*, *Pistacia*, *Artimesia*, *Saccharum*, *Dodonaea*, *Berberis*, *Rosa moschata*, and *Daphne oloides*. This area is located along the main Indus River up to Raikot and Bunji.

2.2.2. Montane Dry Temperate Coniferous

This zone contains dry deodar (*Cedrus deodara*), blue pine (*Pinus wallichiana*), fir (*Abies spectabilis*), spruce (*Picea smithiana*), chilgoza (*Pinus gerardiana*), and juniper (*Juniperus spp*) pure or mixed. All-important coniferous forests are found in this zone. These include:

- m Most of the forests in Tangir, Darel, Chilas, and Doian, Dashkin, Mushkin, Tourblin, Khudkisht, Harcho, Rama, Parishing, Bulashpar, Gurais, and Minimergh in Diamir District.
- m Haramosh, Missikin-Bunji, Bagrot, Naltar, Chalt-Chaprot, Bar, Rahimabad, Minapin in Gilgit District.
- m Sherquillah and Singul in Ghizar District.
- m Ganji, Hingo-Mehndi, Bulachi, Basho, Kachura and Kharmang in Baltistan District.

2.2.3. Montane Dry Temperate Broad-leaved

There is not a separate territory of broad-leaved species in this zone but there are pockets within the temperate coniferous zone, which have distinct broad-leaved vegetation. The prominent species in this zone include oak (*Quercus. ilex*), ash, poplar, willow and *Artimesia*.

2.2.4. Sub Alpine

This zone is characterised by the highest snowfall in NA, ranging up to 3 meters, but with low rainfall. The prominent plant species of this zone include birch, willow, juniper, Ephedra, Viburnum, Andropogon, Berberis, Lonicera and Ribes.

2.2.5. Northern Dry Scrub

Although there is scattered scrub vegetation but none of it is forest like. Sea-buckthorn and Willow species grow along rivers and nullahs. Scattered and stunted Juniper trees also grows

2.3. Floral Characteristics

Some general characteristics of the flora of the Northern Areas are given below:

- m Natural forests are limited to Diamir District, southern parts of Gilgit District, Punial area of Ghizar District and a few pockets in Skardu District. There are no natural forests worth the name in Ghanche District, most parts of Skardu District (Deosai, Tolti, Shigar), northern parts of Gilgit District, (Hunza), and in Ishkuman, Yasin and Gupis in Ghizar District as there characteristic vegetation is northern dry scrub.

- m The northern most limit of deodar is Bonar Nullah west of Nanga Parbat in Chilas Sub-Division (Tangir, Darel and Chilas). It does not occur in Astore Sub-Division of Diamir District and elsewhere in Northern Areas
- m Chir pine (*Pinus roxburghi*) does not grow in the natural forests in Northern Areas
- m *Dodonia viscosa*, as ground vegetation and indicator species of sub-tropical scrub in Pakistan, occurs only in the southern most tip of Tangir on lower slopes along the Indus River.
- m Deodar is the dominant tree species in the coniferous forests at upper elevations in Chilas Sub-Division and blue pine in all coniferous forests at upper elevations elsewhere in Northern Areas.
- m Fir gives way to spruce as we go towards the north. Both occupy sheltered slopes.
- m Deodar is stunted and branchy, and occurs below, above and mixed with blue pine.
- m Close canopy forests are rare. Tree growth in most parts is patchy or scattered.
- m There are many endemic species such as wild almond (*Prunus amygdalus*) or (*Amygdalus spp*).
- m There is a great diversity of coniferous species as mentioned above. There are six species of Juniper (*J. excelsa. polycarpus*; *J. excelsa macropoda*; *J. communis*; *J. turkistanica*; *J. indica*; and *J. recurva*).
- m Because of comparatively more precipitation, plant biodiversity including medicinal plants is more in the forests of Astore Sub-Division including Gurais Forest in Minimung Tehsil draining in Neelum River. It includes kuth (*Sassuria lappa*) – an endangered medicinal plant species on Appendix 1 of CITES.

The ecology and flora of Northern Areas has not been studied adequately

2.4. Forest Cover

The forests in Northern Areas are mostly limited to southwestern parts of NA in the districts of Diamir, Baltistan, Gilgit and Ghizar. Communities own almost all forests in Diamir District and their official nomenclature is "Private Forests" as opposed to state-owned "Protected Forests" elsewhere that have been designated under the Pakistan Forest Act, 1927.

The statistics regarding forests cover vary greatly. The various figures picked from the documents and reports are used. It will be important to analyse the accuracy of these reports and to agree to the correct ones for future use by all stakeholders.

Alam has reported the following figures in one of his notes:

Forest	Area		
	Sq. miles	sq. km	ha
Chilas, Darel and Tangir	848	2,171	217,088
Astore Sub – Division	120	307	30,720
Gilgit, Punial and Nagar	96	246	24,576
Baltistan	36	92	9,216
Total forest area	1,100	2,816	281,600

Note: Almost all of it is Coniferous. Reliable estimates of area of sub-tropical scrub forests are not available.

Table 5: Area Coverage by Natural Forests (in ha)

	Natural Coniferous Forests		
	Protected Forests	Private Forests	Total
	1	2	3
Area in ha	65,016	77,175	142,191
Percent			

Source: 1. Northern Areas Forest Department (NAFD); 2. Forestry Statistics of Pakistan (1996)

2.5. Legal Classification

Forests in state ownership in Northern Areas have been designated as protected forests under the Pakistan Forest Act (1927). The other legal category of forests in Northern Areas is "private forests", although the local communities own these. Legal cover to these forests is provided by the Gilgit Private Forests Regulation (1970) and the Rules framed in 1975 under the Regulation.

2.6. Biodiversity

Great variation in altitudinal range, climate, geology and soils has helped to develop five major ecological zones and many more ecosystems due to further local variations. The variety of habitats is tremendous. Hence, these forests support a large number of plants and their associated fauna. The associated fauna of forests in Northern Areas has not been studied. Some important forest related species include:

Mammals: Woolly flying squirrel, flying squirrel, musk deer, Himalayan black bear, common leopard, wolf, pine martin, civet, fox, jackal.

Birds: Monal pheasant, green pigeon (migratory), blossom-headed parrot.

2.7. Grazing

The forests provide grazing to livestock (cattle, sheep and goats). Communities have grazing rights in the Protected Forests and the owner communities graze freely in their private forests. Grazing is not regulated even after felling trees for the encouragement and establishment regeneration. Thus the main reason for the failure or inadequacy of regeneration in natural forests is grazing.

2.8. Tourism Potential

Forests are an important source of countryside recreation and eco-tourism. The forests in Northern Areas have special significance and attraction but this potential has not been exploited so far. The important forest areas with great potential for eco-tourism include the areas around Nanga Parbat, at least a couple of forests in Darel, Tangir and Chilas, Rama forest in Astore, Naltar forest in Gilgit, Chalt–Chaprot, Sai bala, Kargah nullah, Minapin, Khaltaro, Haramosh, Kutwall Haramosh and Bar valley in Gilgit District. There is already some eco-tourism in forests around Nanga Parbat and Naltar forest.

The attractions and potentials relating to forests include: landscape, modest climbing and hiking, open spaces in between, local culture and traditions folk stories, songs and dances, bird watching, watching big animals, seeing cultural properties in and around forests, horse riding, hot and cold springs, jeep safaris, special plants, animals and insects, geology and rocks, guided trails and local cuisine.

Important requirements for encouraging forest related eco-tourism include: rules of ethics for visitors, water, toilets, waste disposal and cleanliness; avoiding music and noise; sign posts, information boards; information regarding the natural resources, special areas, spots and local customs and traditions. Day trips and modest kiosks instead of restaurants and hotels are to be preferred. Valley entry fee, guide fee, trained guides, and interpretation of the natural and social environment would be useful both for local communities and tourists.

2.9. Medicinal Plants

Although a large number of medicinal plants grow in the natural forests in Northern Areas, the most important ones in use are mentioned below:

	Botanical Name	Local Name
1	<i>Aconitum chasmanthum</i>	<i>Mohri</i>
2	<i>Aconitum hetrophyllum</i>	Partis
3	<i>Aconitum lavae</i>	
4	<i>Angelioa glauca</i>	Chora
5	<i>Arterisia bravifolia</i>	Rund
6	<i>Carum spp.</i>	Kala zeera
7	<i>Ephedra spp.</i>	Oman (asmani booti)
8	<i>Ferula feotida</i>	Heeng
9	<i>Ferula narthex</i>	Heeng
10	<i>Lavatria kashmirianian</i>	<i>Resha Khatimi</i>
11	<i>Macrotomia-benthami</i>	<i>Gao zaban</i>
12	<i>Onasin echiooides</i>	Laljari
13	<i>Orchus-latifolia</i>	Salib misri
14	<i>Picrohiza-kurroa</i>	karroo
15	<i>Podophyllum-emodi</i>	Ban kakri
16	<i>Rheun emodi</i>	Rhewand chini
17	<i>Sausuria-lappa</i>	<i>Kuth</i>
18	<i>Saxifraga ciliata</i>	Zakhmay hayat
19	<i>Shymus serpyllum</i>	Bannanajwainu
20	<i>Swertia chiretha</i>	<i>Chiretta</i>
21	<i>Valeriana wallichii</i>	<i>Mushak bala</i>
22	<i>Viola serpens</i>	<i>Banafsha</i>

Salajeet, which is a rock excretion and used in medicines is also extracted from forest areas.

Currently, their harvesting is not regulated except for Kuth and Karoo that too is not very sound. Kuth is endangered and is on Appendix 1 of the CITES. As a result,

its export from Pakistan has been banned since early 1980s. It is important that their harvesting is regulated according to the productive capacities of the sites. In addition, the harvesting and extraction must be carried out through local communities to give them a stake in their sustainable management. Many medicinal plant species have potential for artificial propagation. Techniques for raising some of these have already been developed by KARINA and others. It would be very useful for the communities to grow these on commercial scale for earning income. This will also divert the pressure of over exploitation from the forests. Involvement of local communities in in-situ conservation and sustainable use of medicinal plants is important. This approach needs to be promoted through policy and legal reform.

2.10. Watershed Value

Almost entire Northern Areas fall in the watershed of Tarbela Dam with the exception of Minimerg Tehsil, which drains, into Neelam River. The mountains in the areas are very fragile. The soil is susceptible to rapid erosion if the vegetative cover is denuded. The forests have vital importance for their watershed value at local and national levels. Their environmental role including watershed is far greater than their wood production role. Besides enhancing the life span of Tarbela Dam, they prevent local floods, maintain local water supplies and conserve soils.

3. PROTECTED FORESTS

3.1. Definition

The forests in Astore Sub-Division of Diamir District as well as in Gilgit, Skardu and Ghizar Districts are designated as Protected Forests. According to section 29 of the Pakistan Forest Act, 1927 (Annex- 4) a Protected Forest is a forest land or wasteland, which is not included in a Reserved Forest, but which is the property of Government or over which the Government has proprietary rights or to the whole or any part of the forest-produce of which the Government is entitled. The provincial Government by notification in the official gazette makes the provisions of this Chapter on Protected Forests applicable. In a protected forest all activities are allowed except those, which are specifically prohibited. Generally, grazing and removal of dead, dying and fallen wood is not prohibited. But grazing can be regulated for ensuring regeneration.

Kashmir Affairs and Northern Affairs Division GoP declared through notification No. D/5(\$)/81-I of May 9, 1983, blue pine, chir pine, chilgoza pine, spruce, fir, juniper, ash, birch, olive, poplar species, wild almonds, wild pistacia and willow in the protected forests of the Northern Areas to be the reserved trees in order to prevent their over harvesting. This decision is not being enforced by the Forest Department due to weak law enforcement.

3.2. Area Statistics and Geographical Distribution

Area under protected forests (conifers) in Northern Areas is 64,512 ha. Total (scrub) forests are 381,200 ha but further classification into private or protected forests is not reported. District wise distribution of protected forests in Northern Areas is given in Table 6.

The protected forests in various locations of districts are listed below

- m Diamir District (only in Astore sub-division) – Bunji, Rama, Bulan, Gurikote, Tarshing, Parshing, Bulushber, Rattu, Mir malik, Rehmanpur, Buluchi, Qamari, Doian, Harcho, Mushkin-Dashkin-Turbiling, Faqir, Kot, Gudai Valley, Kala Pani, Gurais in Minimurg Tehsil.
- m Baltistan District – Sadpara, Thorsay Bilamik, Munthoka/Gasing, Torgan Memosh, Hargosil, Bilarma, Basho, Gangi, Talu, Harpo, Mendi, (Hingo), SKB, Kachura, Kharmang Forests.
- m Gilgit District – Minower, sakwar, Jutial, barmus, Nowpura, Healter, Juglote, Rehmainabad, sharote/shikiote, Danyour nullah, Bar valley, skindarabad, jafarabad, Minpin, Thoal/Nilt, Haramosh, Sai Nallah, Bagrot, Kargah Nallah, Naltar and Chalt–Chaprote Forests.
- m Ghizar District (Punial)– Assumber, Pakora, Thandar/Mathandar, Sherqillah Nallah, Ghulapur, Singul Nallah, Gich Nallah, Isi Nallah and Bargal Nallah, Birga?

Table 6: Protected Forest in Northern Areas							
District	Area			Forest Type	Significance	Rights	Remarks
	mile ²	km ²	ha				
Gilgit (Gilgit and Nagar)	66	169	17028	Montane Dry Temperate and sub alpine	Subsistence timber, firewood, grazing and other NTFP; biodiversity, Watershed, eco-tourism, forest PA and logging for civil works	1. Free grant of timber and fuel wood in Nagar area to the local right holders as per notification of 1974. 2. In Gilgit, the timber is supplied on concessional rates to the locals but firewood from dead and dying trees is free.	1. No forest in Hunza
Ghizar (Punial)	30	77	7740	Montane Dry Temperate and sub alpine	Subsistence timber, firewood, grazing and other NTFP; biodiversity, Watershed, eco-tourism, forest PA and logging for civil works	1. Free grant of timber and fuel wood to the local right holders as per notification of 1974.	Limited and Scarce forest resource in Ghizar District. No forest in Punial and Gupis
Diamir (Astore)	120	307	30960	Montane Dry Temperate and sub alpine	Subsistence timber, firewood, grazing and other NTFP; biodiversity, Watershed, eco-tourism, forest PA and Logging for civil works	1. Free grant of timber and fuel wood to the local right holders as per <i>Ailan</i> no.40 of 1940	1. All forests in Chilas, Darel and Tangir are Private forests
Skardu	36	92	9288	Montane Dry Temperate and sub alpine	Subsistence timber, firewood, grazing and other NTFP; biodiversity, Watershed, eco-tourism, forest PA and Logging for civil works	1. In Skardu, timber is supplied on concessional rates to the locals but firewood from dead and dying trees is free.	1. Limited forest resource in Skardu District. No forest in Ghanche District.
Total	252	645	65016				

Source: Area and information on rights provided by the NAFD

- m (Yasin) - natural forests of poplar and willow in Darkot.
- m Ghanche District – Natural Scrub forest of Willow and Sea-buckthorn exist in almost all nullahs and river beds besides existence of Juniper forest in Thala, Kharfuk, Khaplu nullah and Hushe valley.

Information on individual protected forests (if it becomes available) would be summarised in Annex-2

3.3. Significance of these Forests

These forests are very important for meeting the subsistence needs of local rural communities including wood, fuel, timber, grazing, medicinal plants, food (chilghoza, mushroom, honey, wild fruits) and for providing environmental groups e.g. water for agriculture and drinking, services e.g. eco-tourism etc. Nationally these are important as key watersheds.

3.4. The Resource and its Management

All major montane dry temperate coniferous species except deodar, montane dry broad-leaved and sub alpine species are found in these forests. None of these forests have been commercially harvested except for the construction of government buildings and bridges on rivers and streams. The reason is that these forests can hardly meet the requirement of the local population for timber and firewood. Many of these forests have degraded due to over-exploitation. These are also over-grazed. Consequently there is practically no natural regeneration. Most of the crop in the natural forests of Gilgit District is over mature or middle-aged trees are found. There is distinct absence of pole crop with the exception of few pockets. The conspicuous absence of deodar may be due to extreme and prolonged cold and low monsoonal precipitation. However, deodar plantations have been raised over an area of 4 acres in Jutial nullah, at a distance of 4 km from Jutial Cant. area. Five hundred pole trees of deodar also exist in a plantation near Skardu.

3.5. Issues

The issues common to almost all protected forest include:

- m Lack of community involvement
- m Harmonising rights with production capacity of forests
- m No management plans
- m Timber and firewood taken by non-residents
- m Illegal felling
- m Unregulated / overgrazing
- m Illegal hunting
- m Absence of regeneration
- m Lack of awareness of importance of forests among communities.
- m Lack of unanimity among the community for protection of forests.
- m Lack of finances for the protection of forests.
- m Inadequate forest supervisory staff.
- m Lack of sense of responsibility for protection of forests.
- m Trend to make easy money through illegal cutting / felling of forests.

3.6 Views on the Management of Protected Forest

Almost all protected forests in NA are degrading since the existing management by NAFD is not conducive to their conservation and sustainable management, for which the participation of local communities in their planning and management is essential. One option is to re-designate the 'protected forests' as 'village forests' as provided in section 28 of the Pakistan Forest Act (1927) for conversion of the reserved forests that have higher degree of protection compared with the protected forests. The objective of re-designation being the same (management by village communities) and the degree of protection desired in case of protected forests being less, it should be legally possible to re-designate the protected forests as village forests and support their management by local communities. The role of the NAFD will be of advisor and monitor in such a case. The case study (unpublished) of Chalt – Chaprote forests by Ali Gohar and A L Rao (2001) given at Annex – 5 has concluded that such an arrangement of JFM would be very advantageous and feasible.

Box 1: Chalt – Chaprote Protected Forest Management

This forest was being managed sustainably by the Mir of Nagar State. Its control was acquired by NAFD in 1974 when it was designated as a protected forest. This change caused felling and the forest degraded. The dependent local communities assumed its management and controlled the felling and removal of trees by outsiders. This approach was successful and helped in regulating forest exploitation. Later on, conflicts arose between local communities of Chalt and Chaprote. Management during this period of control by the communities suffered and the lack of participation of NAFD was felt necessary. The correct approach would have been joint forest management with the participation of both the local communities and the Forest Department, each with its specific roles and responsibilities mutually agreed by them, and specified in a binding agreement between the parties. The JFM wherein both local communities and the forest department will have roles and responsibilities, agreed by both, is the way forward for conservation and sustainable use of this forest. JFM, agreements were drawn by the forest department with the communities of chalt and chaprote in 2001. Both are satisfied with the JFM approach and its results.

4. PRIVATE FORESTS

4.1. Definition

Private Forests are regulated under the Gilgit Private Forests Regulation, 1970 and the Rules notified in 1975. In accordance with the Accession Deed of 1952 with the Govt. of Pakistan the tribal communities of Chilas, Darel and Tangir in Diamir District own the private forests. But these are to be managed by the Northern Areas Forest Department (NAFD) as agreed by the local communities in the Deed.

4.2. The Resource and its Management

The communities had accepted the role of the Forest Department to manage these forests in lieu of royalty on commercial timber to be extracted by communities in accordance with the system and procedures to be decided by the Forest Department. The Forest Department is responsible for advising the local communities on timber exploitation, if for commercial purposes, and timber sales system.

The Forest Department has tried to regulate extraction of timber from these forests through Working Schemes (a kind of a harvesting plan) from the selection-working circle. The timber used to be sold standing by communities to contractors. In the Working Schemes basic principles of management of individual forests, and requirements of silviculture and environmental protection had been ignored.

NAFD has been helping the communities in commercial harvesting of private forests by preparing working schemes, marking of trees for felling and issuing permits for transportation of timber to markets, which are located outside NA.

A summary of statistics regarding the working schemes of the private forest is given in tables 7.

Total covered area (ha)	Volume Prescribed (m ³)	Volume Marked (m ³)	Volume Extracted (m ³)
64,856	786,604	591,815	522,968

Source: Draft working plan (2002-2013) for natural coniferous forests of Chilas, Darel and Tangir Forest Division of Diamir District, Northern Areas (June 2001)

Recently, NAFD has come up with a Draft Working Plan (2002 – 2013) of Private Forests in Diamir District. The area of the various categories of forests and land uses is given in Table 8.

Table 8: Productivity-based forest area classification and ancillary land use in Chilas, Darrel and Tangir forests (in ha)

Total area (ha)	Selection working circle (ha)	Protection working circle (ha)	Blanks (ha)	Agriculture area (ha)	Total blocks	Total compartments
91,906	51,841	25,334	13,557	1,174	21	500

Source: Draft working plan (2002 – 2013) for natural coniferous forests of Chilas, Darel and Tangir Forest Division of Diamir District, Northern Areas (June 2001)

Table 9: Trees and volume in Private Forests in Chilas, Darrel and Tangir

Period	Total trees (million)	Total volume (m ³)	Volume to be harvested (m ³)
2002-2013	5.51	9,169,924	1,281,507

Source: Draft working plan (2002 – 2013) for natural coniferous forests of Chilas, Darel and Tangir Forest Division of Diamir District, Northern Areas (June 2001)

Information on some of individual private forests is available in the draft-working plan.

4.3. Issues

Regeneration of the felled areas had been left to the felling contractors who never bothered about it. The communities could not and did not watch this aspect due to influential local people being the initial contractors who invariably sub-leased the contracts to outsiders for huge profits. This situation was further aggravated by repeated extensions in contract periods by the NAFD, marking of additional trees for felling and issuing permits beyond the limit of sold volume of timber. Consequently, the communities have been losing revenue as well as forests on which their subsistence depended; and a few from the communities and the outside contractors have been making huge profits.

Govt. also loses royalty, as the actual lease price especially that paid by the final contractor is very high compared to what is written in the initial lease deed (often fake) that is made available to the NAFD.

The Govt. itself purchases a percentage of the harvested timber at nominal price for its own use or for giving to the individuals. This is commonly known as "syndicate timber". This system is liable to misuse. It further reduces the revenue going to the communities, as the contractors factor this in lease and sub-lease prices.

The local influential and others negotiate the lease of their forests in advance of felling. Often they represent the communities in any dialogue and negotiation with the government agencies. They would not like to change the system for better to the communities for their vested interests. It is not possible to know the fact or position, which of the forests have already been sold by the communities.

Another important issue relates to contractors from outside of NA who employ labour from outside, which is skilled and loyal to the contractor. As a result, the local community's capacity is not built. The local community is deprived of local employment and illegal felling by contractors goes unnoticed.

Since regeneration has not been a genuine concern and its consideration in the Working Schemes and resultant logging of private forests has been lacking. As a result, depletion has been going on in many private forests while many others have been degraded. In the wake of devastating floods in 1992, which were attributed mainly to deforestation and degradation of watershed values, the Govt. of Pakistan imposed ban on commercial logging. Consequently, authorized felling stopped but was replaced by unauthorized felling. NAFD has been issuing permits for removal of unauthorized cut timber periodically by gradually increasing the amount of royalty. This has been an incentive for continuing unauthorized felling by anti-social elements or influential with or without the willingness of the owner communities. Currently, felled timber is lying in many private forests and along side Karakoram Highway (KKH), gradually finding its way to Dargai timber market in NWFP.

The draft working plan (2002 – 2013) is an improvement over the working schemes that were developed and implemented in the past and consider the forests at the landscape level but suffers from the traditional approach of dealing all private forests as if these are owned by one owner say government rather than different communities. The element of forest landscape restoration (FLR), which is very important for those forests is also missing.

The principal of annual sustained yield from these forests taken together by logging in a felling sequence has been used rather than planning the management of individual forests. The felling sequence has not been revealed to the communities. On knowing it those wanting to log their forests but getting their turn many years down the line would get frustrated and may start unauthorized felling and even put the implementation of the plan in jeopardy.

The principle of community management of forests has been subscribed but the traditional approach of logging by contractors has been retained in the working plan.

Further, since the management planning of forests, in the draft working plan has been attempted at mega level the specific aspects of individual forests have been lost sight of. These aspects include biodiversity, wildlife, other non-timber forest products e.g. medicinal plants, tourism and watershed values, potential in the future, sustainable management of individual forest, promotion of alternate sustainable livelihoods of related communities, and promotion and use of alternates of timber, fuel wood and grazing to name some.

4.4 The Way Forward

The planning and management of private individual forests, as a distinct entity, by the local communities with support from NAFD and other stakeholders is an effective way of encouraging their participation. This would involve various organizations for building the capacities of the local communities in the organization, management, planning and forest operations including marking and felling of trees, marketing, regeneration, rotational grazing etc. It is, therefore, important that management planning is done at the level of individual forest. This was also suggested by some of the Members of Northern Areas Legislative Council

(NALC), IUCN representative and an NGO representative in the Consultative Workshop on the draft-working plan of Private Forests in Diamir District held on 13 October 2001. In addition it would also involve the transformation of the value system and attitudes of the officials, of the Forest Department and their rigorous training in the application of the participatory approach in the NA.

The way forward in this respect is to develop a model and introduce a new system that also takes care of restoration of the degraded forest and sustainable management of one or more representative individual private forests in Diamir District through a pilot project. However, this may be possible only in case of forests, which have not yet been sold by the communities. In case of success, the lessons learnt and in this way the owner communities of other private forests in Diamir would gradually adopt the methodology used.

5. THREATS TO NATURAL FORESTS

There are direct and indirect causes as well as poor planning and management that are responsible for deforestation and degradation of forests. A summary is provided in Figure-1.

5.1. Direct Causes of Over Exploitation

5.1.1. Wood Harvesting for Commercial Use

- m For meeting housing requirements of ever increasing urban housing and rural housing in Northern Areas including settlements where timber forests do not occur locally as well as for commercial establishments including hotels, restaurants, shops etc.
- m By PWD contractors for construction of Govt. buildings and bridges throughout Northern Areas.
- m For sale out side of Northern Areas, mostly from the private forests in Darel, Tangir and Chilas.
- m For furniture making.
- m Fire wood for cooking and heating in urban areas as well as for fuel wood deficient areas and commercial establishments.

5.1.2. Wood Harvesting for Subsistence

- m Timber for housing, agricultural implements, furniture and other uses
- m Extraction of torch wood for lighting
- m Firewood for cooking and heating.

It is becoming extremely difficult to meet subsistence requirements from the degraded natural forests for the ever-increasing population.

5.1.3. Grazing

Although scientific studies have not been carried out on the carrying capacity of forests for grazing and on the current status but certain impacts are obvious. One of the major reasons for failure of regeneration after felling of forests is free grazing of livestock (55% of which comprises of goats in NAs). The number of livestock being almost static it results in over grazing especially during drought years. In the Private Forests, communities graze their livestock freely. The status of grazing even in the Protected Forests is not different.

5.1.4. Inefficient Use of Wood

The use of wood for housing, furniture, cooking and heating is quite in efficient. Traditional systems, designs and equipment have great scope for improvement. Building & Construction Improvement Program (BACIP) of Aga Khan Development Network (AKDN), WWF-P and some other organizations are trying

to promote improved housing designs, and cooking and heating equipment for increasing efficiency.

5.1.5. Land Use Changes

Valley floors along rivers and streams are the most preferred areas for agriculture and housing but easier slopes with better soils are also converted for these purposes. There is also a recent trend to construct hotels and restaurants at picturesque points. Often, all or some of these activities involve land use change from forest. Construction of roads, especially through forest areas, has resulted in cutting of trees. However, these have not been serious threats in NA due to occurrence of forests quite high up above the valley floors.

5.1.6. Shelling from across the LoC

Kharmang Forest in Skardu District is situated close to the Line of Control (LoC) and has been severely damaged by shelling of the Indian Army from across the LoC.

5.1.7. Lack of Regeneration

The felled areas do not regenerate due to non-seriousness including grazing and not undertaking artificial planting. But more serious is the fact that natural regeneration of many species including Junipers, Oak, Fir and even Deodar is not taking place in many forests. This could be partly attributed to grazing but there may be certain natural factors that need to be investigated.

5.1.8. Forest Fires

Forest fires pose a problem during summer, in particular to dry montane sub tropical scrub forests in Diamir and Gilgit Districts. There are no plans and no facilities to prevent or fight forest fires. These fires may cause tremendous damage, even more than that from over-exploitation by local communities.

5.1.9. Forest-land Encroachments

Agricultural cultivation and settlements are expanding and there is a temptation to cut forest trees and convert forest lands for these uses. Such encroachments are common in Naltar protected forest.

5.2. Indirect Threats

Foresters have not considered the indirect causes of forest depletion in the planning and management of forests so far, accepting these as externalities, being the responsibility of others and beyond their means. Their planning and management has been in isolation. It is however; clear that the indirect causes cannot be ignored any longer if the trend of forest depletion has to be reversed. This is why participatory and integrated planning and management is such an important option for sustainable management of forests in the future. Important among the indirect threats to the survival of the forests of NA are as follows:

5.2.1. Population Growth

Population in Northern Area has been increasing at the rate of 2.74% per annum and 84% of the population is rural and most of it depends on natural resources for

subsistence –: agriculture, livestock, forests, rangelands and water. Added to this is the strictly finite production capacity of the territory due to its low precipitation, cold climate, and a small area capable of producing agricultural crops.

5.2.2. Poverty

The entire area is mountainous, the growing season is short and the weather is harsh. The Productivity and quality of agriculture and livestock is very low. Currently, the employment opportunities are limited. However, tourism, and export of fruit and vegetable, especially potato to other parts of the country are picking up. Cost of living in Northern Areas is very high due to their remoteness of and dependence for food and other necessities on other parts of the country. Forest trees and livestock are considered capital items by the local people that they can cash at the time of need for money

5.2.3. Inequity

Inequity in benefit sharing is the other reason that de-motivates all members of a community to conserve and sustainably use the forest local resources. For example, the influential make most money from leasing timber from the private forests (owned by poor and rich in the community) while others do not get much and are not motivated to conserve them. In such a situation both groups would like to exploit the forests sooner than later.

The Government purchases a percentage of timber called "syndicate timber" from forest contractors at nominal rates for government buildings and distribution to others. This deprives the communities of their rightful share of money indirectly.

5.2.4. Improved Access

The construction of Karakoram Highway (KKH) and many other roads have opened many forests to legal (but unsustainable) and illegal felling, mostly to commercial logging for sale of timber outside of Northern Areas. As a result, large-scale fellings have taken place, especially in the Private Forests in Diamir District without ensuring regeneration.

5.2.5. Land Tenure

Land tenure is not clear in many parts of Northern Areas. Consequently, dejure and defacto ownership of many forests is contentious between communities and the government. Chalt – Chaprote Forest is an appropriate example of this. The result is that the communities have a stake in the forest but do not have the requisite interest and role in their management. This results in over exploitation and unsustainable management.

The ownership of the private forests in Darel, Tangir and Chilas is of local communities but their management is the responsibility of the Forest Department. For various reasons this arrangement has failed to ensure the sustainable management of these forests.

It is necessary to review this relationship to entrust the management of individual forests to the owner communities, the Forest Department assuming the role of facilitator, advisor and supporter in planning and managing their forests.

5.2.6. Local Traditions

The strong tribal system in Darel, Tangir and to some extent in Chilas, has impeded progressive thinking and development even equitable benefit sharing amongst the various members of communities and has provided protection to those involved in illegal felling for commercial sale.

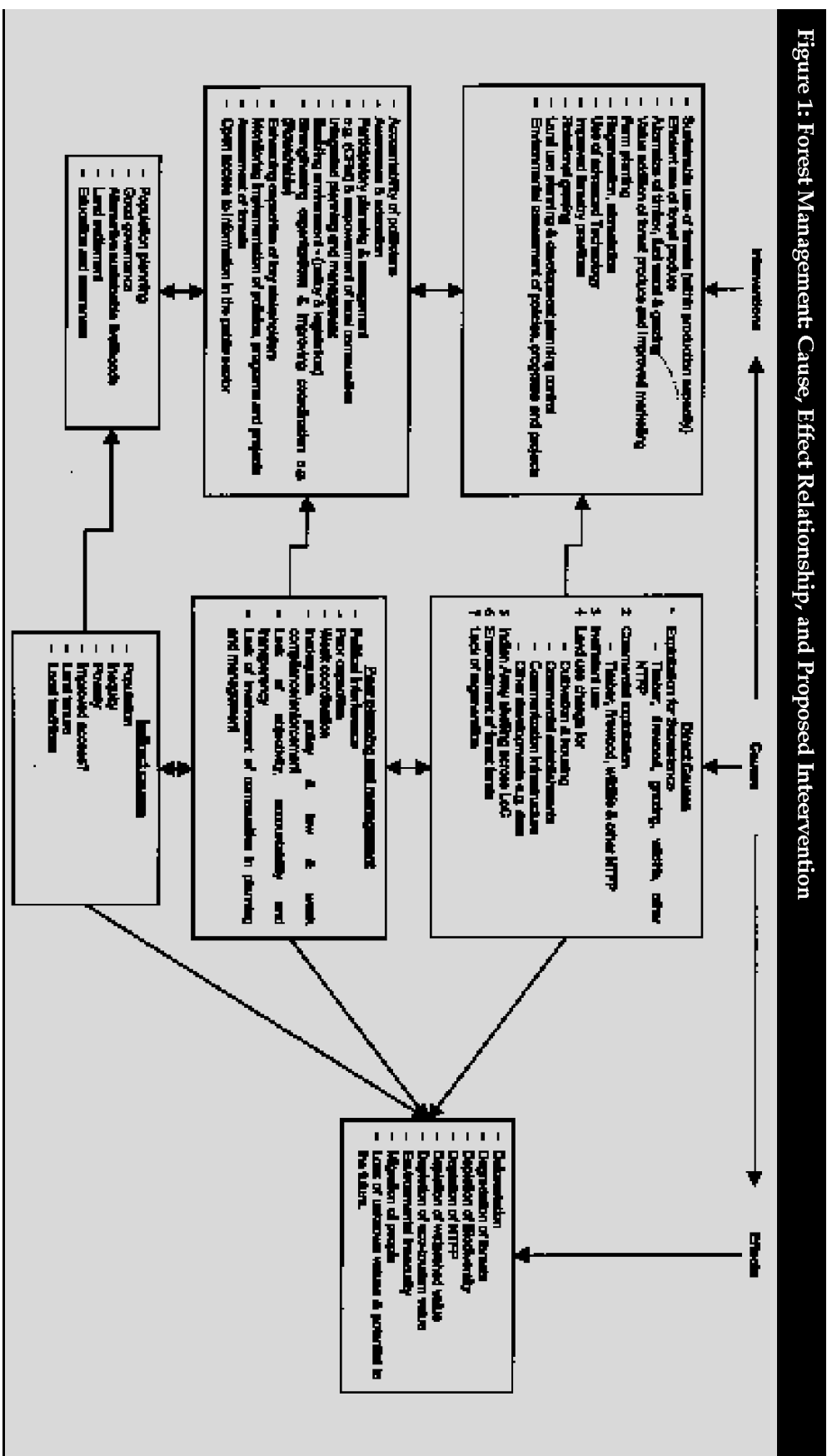


Figure 1: Forest Management - Cause, Effect Relationship, and Proposed Intervention



6. FARM FORESTRY

6.1. Introduction

According to Rowan Reid and Peter Stephen (2002) the objectives of farm forestry vary widely but can be loosely related to the financial, environmental, agricultural, non-agricultural or personal goals of individuals' farmers or relevant organizations:

- m Financial goals include investment, diversification, deferring income, utilising unproductive land, enhancing property values, providing on-farm employment, etc.
- m Environmental goals comprise controlling land degradation, enhancing natural habitats, screening offensive industries, improving water quality, etc.
- m Agricultural goals encompass shade and shelter, wood for farm implements, controlling vermin and noxious weeds, recycling or fixing soil nutrients, fodder for livestock, etc.
- m Non-agricultural goals – enhance tourism potential, develop new skills and job opportunities, establish a forestry related on-farm business, etc.
- m Personal and life style goals - Wishing to leave a legacy, watch a forest grow, learn about the natural environment, improve the view, etc.

Identifying clear motivations is the first step to designing appropriate farm forestry options. When defining goals, farmers must be specific. Many farmers prefer multipurpose farm forestry designs in preference to "best-bets" that maximise single values. If farmers are seeking multiple benefits they will need to clearly specify their priorities and the minimum requirements for each outcome.

The following considerations will help to decide the specific objective(s) of planting and its design.

- m Must haves - what the planting must provide to satisfy?
- m Like to have – extra benefits that would be welcome
- m Must nots – characteristics or outcomes that must not result
- m Prefer nots – characteristics or outcomes that should be avoided

Although, the farmers in NA do not analyse their requirements scientifically, keeping in view the above considerations but they do use their common sense in selecting the species and planting on their farmlands. However, their choice is often limited by the planting stock that is available to them.

6.2. Farm-land Planting

Farmland planting is an old practice in NAs, especially in wood-deficit areas such as Hunza, and in Ghanche, Skardu and Ghizar Districts. Gradually, local wood resources diminished in some other areas and market mechanisms also started for wood products. These factors helped to promote farm planting. Raising fruit trees in the courtyards of houses is also a tradition. Apricot, mulberry, cherry, plum,

apple, grape, fig, walnut, pear, peach, almond, pomegranate, and amlok. Aloochoa included in plum are the common fruit trees grown on farmlands and in courtyards of houses in NA. Beside fruit, these trees also contribute substantially to meeting the needs of household energy.

Farm forestry got a big boost with the support of AKRSP, wherever it worked in NA. While NAFD was focusing on the management of natural forests, AKRSP took lead in farm forestry by raising nurseries and promoting farm planting with the help of village organisations. Planting of fast growing timber, firewood and fodder species in the agricultural fields has been undertaken on a large scale. Farmers have even established wood lots. Saplings were supplied to the farmers free of cost by the AKRSP from its own nurseries and the village organisations were also supported to raise their own nurseries. The intervention was quite successful. The species mostly included poplar, mulberry, ailanthus, eleagnus, and fruit trees to meet the growing demand especially of fuel wood and fodder.

NAFD followed suit. The first farm forestry project was initiated in mid 1992-93 for planting an area of 1214 ha in all five districts of Northern areas and was completed in 1998-99. This also included state-owned area of 405 ha. The activities included planting on community areas, training of local farmers, and construction of roads and water channels. This project having met success, another social forestry project was started in 2001-02, which will be completed during 2005-06. The statistics regarding farm forestry are given in Table 10.

Table 10: Farm planting in Northern Areas (in ha)

Farmland Plantation before (1979)	Other Plantation by NAFD	Farm plantation by AKRSP & village Organizations
6,000	4,048	5,450***

Source: Information provided by the NAFD and annual report of AKRSP for 1998.

Notes: The species include poplar (70%); and robinea, ailanthus, eleagnus and willows (30%).

Total number of small block plantations is 65. The details are given in Annex-6

The AKRSP report (1998) only mentions the supply of plants. Self-planting by VOs do not indicate the source of planting stock, whether supplied by AKRSP or self-grown by the VOs. Clarification would be useful.

The numbers regarding plantations by NAFD need verification.

6.3. Results

- m Persian (Quetta) pine (*Pinus helepenensis*) planting in Skardu failed, perhaps due to extreme cold. Even unsuccessful in other parts of NA.
- m Chir planting in Gilgit succeeded
- m Poplar, robinea, ailanthus, eleagnus, willow and mulberry planting have been successful throughout NA.

6.4. Forest Nurseries

There are 47 forest nurseries maintained by the Forest Department over an area of 24.3 ha with over one million plants. The details of the nurseries are at Annex- 7.

6.5. Policy and Legal Framework

The national forest policy (1991) and the current draft national forest policy promote farm forestry but the legal framework has not incorporated this provision of the policy. It is important that laws are amended to boost farm forestry by providing economic incentives and facilitating transport and marketing of the wood from farmlands. Currently, the wood transport rules of the Forest Department do not encourage farmland planting for commerce. The capacity of the forest department also needs to be developed to assist the farmers.

A President of Pakistan's Annual Award has been instituted for the best planting effort by the educational institutions. This is to motivate the students and teachers to plant the maximum number of trees in the compounds of their institutions. The students and teachers also take the message home that motivates the farmers to plant trees on their farmlands.



7. FOREST ADMINISTRATION, STAKEHOLDERS, PLANNING AND MANAGEMENT

7.1. Cross Sector Relationship and Impacts

Many sectors impact the forestry sector in positive and negative ways. These include human population and settlements, livestock, tourism, energy, water, industry and biodiversity. On the other hand forestry sector limits the flexibility that could be enjoyed by the other sectors. The cross-sectoral relationships and impacts are given in Table 11.

7.2. Forest Policy

A draft forest policy for Northern Areas was developed but has not been taken forward for approval. In the meanwhile, the Ministry of Environment, Local Government and Rural Development is developing the National Forest Policy to which the NAFD has contributed. This too is still in the draft stage. Notwithstanding the exercise at the national level it is important to develop the forest policy of Northern Areas through a wide consultative process and then to implement it through legal reforms and other measures.

The important elements of such a policy should include:

- m Vision, goal and objectives
- m Management planning of individual private forests and their implementation by the local communities. The role of the forest department should be that of advisor and monitor. This approach should replace the existing approach of collective management planning of all private forests.
- m Joint management of protected forests by NAFD and local communities
- m Management planning of all protected forests through rapid appraisal and involvement of local communities
- m Traditional and comprehensive management planning could wait for some appropriate time in the future. These plans need to focus on meeting the rights of local communities within production capacities; moratorium on felling for government's civil works and for meeting the needs of the army; regeneration; and joint forest management.
- m Incorporating watershed, biodiversity and eco-tourism; and integrating livestock grazing and agriculture (wherever occurring but not to extend) in forest management.
- m Promoting farm forestry of which there is a splendid history and considerable potential.
- m Policy and legal reform to support the above and also to meet the obligations of the international conservation conventions.
- m Institutional re-structuring and strengthening by merging forest and wildlife functions and staff for making them responsible for both and developing their capacity especially in JFM, wildlife management and farm forestry through in-service training (formal training courses and practical experience)

Table 11: Impacts of other sectors on forestry

Forestry	Human Population & Settlements	Livestock	Tourism	Energy	Water	Industry	Biodiversity
Positive	<p>Provision of tree planting on roadsides, in public parks and in the courtyards of houses.</p> <p>Availability of labour force for reforestation, planting, maintaining plantations and managing forests.</p> <p>Potential of establishing green belts around settlements.</p> <p>Availability of organizing wastewater and sewerage for tree planting.</p> <p>Many activities tourism potential in forests.</p>	<ol style="list-style-type: none"> 1. Provide fire hazards by feeding on grasses and other annual vegetation. 2. Provide fire hazard by feeding on grasses and other annual vegetation. 3. Provide fire hazard by feeding on grasses and other annual vegetation. 	<ol style="list-style-type: none"> 1. Provides livelihoods to forest dependent communities. 2. Introduces new products and technologies that reduce pressure on forest resources. 3. Creates awareness and support for forest conservation. 	<ol style="list-style-type: none"> 1. Substitutes wood energy and thus reduces pressure on forests. 2. Promotes mechanization and collapse industries e.g. handicrafts as alternative livelihoods. 	<ol style="list-style-type: none"> 1. Boosts farm forestry. 2. Enhances productivity of trees and other vegetation. 3. Facilitates transport of timber in rivers. 	<ol style="list-style-type: none"> 1. Provides alternative livelihoods that reduce pressure on forests. 2. Introduces and makes available alternatives of timber and grazing (e.g. metal door and windows and animal feed) 	<p>Combination of biodiversity in forest management will make it more sustainable & of higher intrinsic value.</p>
Negative	<ol style="list-style-type: none"> 1. Increase exploitation even beyond production capacity resulting in depletion and degradation of forest resources and even deforestation. 2. Conversion of forest land for housing, communication infrastructure, industry etc. 	<ol style="list-style-type: none"> 1. Trample regeneration. 2. Reduced growth of shrubs and trees that are browsed. 3. Could transmit disease to wild animals. 4. Compete with wild animals for food and caused disturbance. 5. Compact soils. 6. Spoil picnic spots with excrement. 7. Cause erosion and reduce recreational value. 	<ol style="list-style-type: none"> 1. Encourage over exploitation of resources. 2. Tourist may cause forest fires, pollution and disturbance to wildlife. 3. Development of infrastructure e.g. roads, buildings may not be environment friendly. 4. Access roads encourage illegal cutting and removal of wood and burning of waste. 	<ol style="list-style-type: none"> 1. Hydel power generation through damming may cause siltation of forest areas upstream resulting in fish and impact on down stream eco-systems. 2. Thermal generation of power causes air pollution that may impact tourism and vegetation in the vicinity. 	<ol style="list-style-type: none"> 1. Torrential rains cause flooding that washes away even timber from forests and causes soil erosion. 	<ol style="list-style-type: none"> 1. Increase rates of sedimentation and human population, and consequent demand of forest products. 2. Create pollution. 3. Reduce tourism potential. 4. Wood based industries cause over exploitation and degradation of forests, and even deforestation. 	<ol style="list-style-type: none"> 1. Does not allow much manipulation of the system from commercial production point of view.

- m Economic incentives to the local communities and motivation of forest staff to conserve and sustainably manage forests.
- m Appropriate level of funding for field operations (nurseries, planting, regeneration, thinning etc) and avoiding funding of infrastructure e.g. forest roads, expensive buildings such as rest houses.
- m Disinvesting or allocating rest houses for tourism, if not used by forest officers.
- m Promoting the use of substitutes of timber, fuel wood and grazing.

7.3. Forest Legislation

After liberation, Pakistan Forest Act (1927) was extended to the Northern Areas and forests in Astore, Baltistan and Gilgit Agency were designated as 'Protected Forests'. The private forests in NA belong to the local communities of Chilas, Darel and Tangir valleys in Diamir District. Their working was governed by the tribal customs of the areas till 1943, when Captain Murphy, Assistant Political Agent laid out crude rules of allowing dead and dying trees with one meter girth at breast height. After liberation, these areas acceded to Pakistan and were annexed with Gilgit Agency. Large scale cutting of trees followed.

The 1st corner stone of the management of private forests was laid in 1958 by framing first marking rules for allowing the removal of dead, dying, damaged and over mature trees. In view of the excessive damage in the private forests in 1967, the Federal Government suspended all contracts till 1970. After a series of discussions, Gilgit Private Forest Regulation (1970) was promulgated which is still in force 1976. Unfortunately, the enactment of these rules have not helped to improve conservation and sustainable use of these forests due to poor compliance by the influential persons from some of the local communities and weak enforcement by NAFD. Now, there is a need to review the legal framework of these forests in consultation with the custodian communities for managing their forests sustainably.

NWFP is pioneering legal reform: A new forest ordinance has been passed and the following eleven rules are being developed under the draft ordinance.

- m NWFP Forest Management (Community Participation) Rules
- m NWFP Protected Forests Management Rules
- m NWFP Malakand Protected Forests Management Rules
- m NWFP Management of Wasteland (Ghuzara) Rules
- m NWFP Forest Produce Transport Rules
- m NWFP Forest Produce River Transport Rules
- m NWFP Duty on Forest Produce Rules
- m NWFP Compensation for Forest Offences and Values of Case Property Rules
- m NWFP Sale and Sawing of Timber Rules
- m NWFP Mazri Control Rules
- m NWFP Forest Officers – Powers, Duties and Rewards Rules

Northern Areas can learn a lot from this initiatives of NWFP to develop its forest policy and enact new forest law and rules.

7.4. Stakeholders

The key stakeholders in forestry sector of NA include the following:

- m Public sector (NAP&DD, NAFD, NAA&LD, NATDB, MoELG&RD, KANA Division)
- m Non-Government organizations (AKRSP, WWF-P, IUCN-P, HWF, BASDO, NDO, BNN)
- m Community based organizations (village organizations, village women organizations, valley conservation committees etc.)
- m Private sector – NACC&I, Forest Contractors' Association
- m Academia (KARINA, PFI, ZSD, educational institutions)
- m Media (press, radio, TV, journalist associations)

7.5. Forestry Institutional Set-up and Capacities

Organogram of NAFD is given in Figure 2. It is very lean and incapacitated for the mandate and volume of work.

7.6. Assessment of Overall Environment for Conservation and Sustainable Management of Forestry Resources

- m Public sector has a concern regarding with deforestation and degradation of forest resources but it is constrained to effectively respond due to low flexibility available to it, lack of capacity, innovative thinking; objectivity, clear mandate, enabling environment (policy and legal framework); and accountability and transparency.
- m Private sector is profit oriented and short sighted. Conservation is not a priority.
- m Communities' awareness, interest and commitment vary greatly. Generally, they are less aware and concerned with the current state of degradation but the concern is gradually rising as degradation starts impacting their subsistence negatively, and as the communities are organizing themselves for collective action.

7.7. Planning & Management of Forests

Forestry is a long-term investment. Short-term whimsical interventions need to be avoided. It is also important to keep an eye on long-term results. Management planning is therefore; very important but this area is weak. Management plans of protected forests have not been developed. Three working schemes of private forests in Diamir District were developed and implemented mainly to allow commercial felling. Recently, a working plan of the private forests has been developed but has not been formally approved and its implementation has not started.

7.8. Forestry Education and Research

Pakistan Forestry Institute (PFI) Peshawar is responsible for education of professionals at graduate and post-graduate levels as well as forestry research. The

Institute's efficacy for fulfilling its mandate has eroded overtime. It has been reviewed recently by IUCN on the request of MoELG&RD. The Ministry is currently trying to implement the recommendations to improve PFI's efficacy and image.

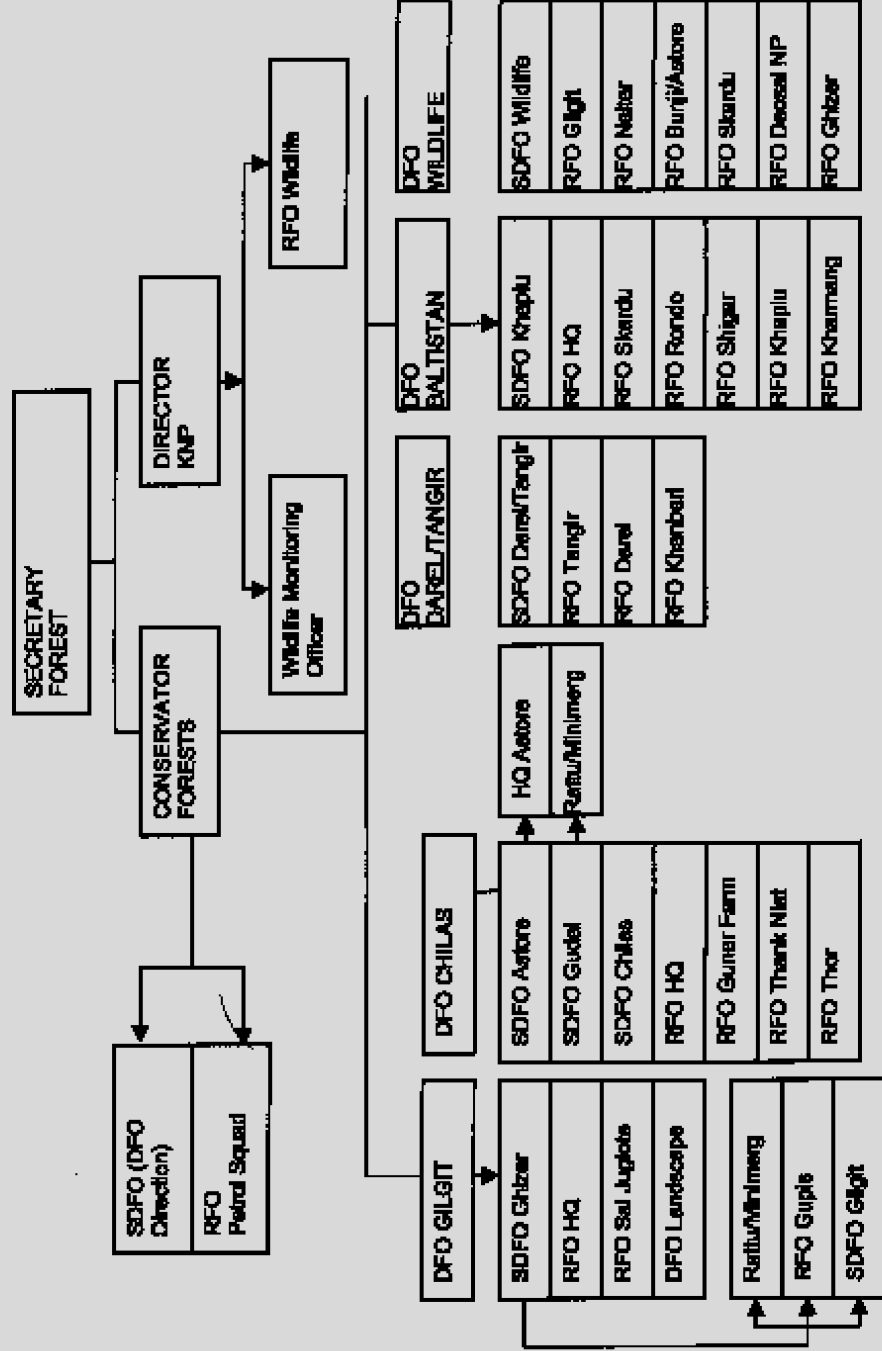
Briefly, all forestry professionals in Northern Areas have got their forestry education from PFI but the Institute has not contributed much in forestry research in Northern Areas, even during the period it was active and effective. This is, perhaps, due to the remoteness. Although PFI is also well placed for conducting in-service training courses this has been a weak area of NAso far. There is strong need of in-service training courses for both professional and technical staff that could be conducted by PFI and forestry schools respectively.

The technical persons (foresters and game inspectors) and skilled workers (forests guards and game watchers) are trained at Kashmir Forest School AJK, Muzaffarabad and Sarhad Forest School, Thai Abbotabad. It is important that the existing staff and the future generation of foresters acquire knowledge and practice in social sciences, biodiversity, protected areas, strategic planning, integrated planning and management of natural resources, farm forestry, range management, watersheds management, international conservation conventions and computer use.

Karakoram Agriculture Research Institute for Northern Areas (KARINA) of Pakistan Agricultural Research Council (PARC) is meant to pursue high altitude applied research on agriculture related topics. KARINA had pursued some research on artificial propagation of local medicinal plants. This needs to be continued to a point that commercial cultivation of these plants is taken up by farming communities and the private sector.

Farm planting is the other area KARINA should focus on. Selecting, propagating and providing appropriate and best tree planting stock and practices for the various ecological zones need to be targeted. NAFD need not develop its own infrastructure for forestry education and research. The existing arrangements for benefiting from relevant organizations should continue but with pro-active advice, funding support and monitoring of results.

Figure 2: Organogram of the Northern Areas Forest Department



8. ISSUES, RESPONSES AND THE WAY AHEAD

8.1. Issues

Though the various issues have been highlighted in the previous chapters, the key ones are summarised and elaborated as follows.

- m Excessive exploitation of forestry resources - wood, grazing, wildlife, other NTFP
- m Lack of enabling environment
 - Lack of vision and policy, and inappropriate legislation
 - Lack of understanding of relationship between environment, resources and development.
 - Lack of land-use planning and development planning control
 - Bad governance due to weak capacity and poor coordination; lack of objectivity, transparency and incentives for motivation; and political interference and vested interests,
- m Lack of institutional capacities and professional approach
- m Lack of involvement of local communities
- m Lack of pro-active management planning
- m Lack of intergraded management including forests; biodiversity; livestock; grazing; watersheds; eco-tourism; NTFP; alternates of fuel wood, timber, grazing; and alternative sustainable livelihoods
- m Inequity in benefit sharing
- m Perverse economic incentives
- m Population and poverty
- m Inadequate investment

The important issues are explained in some detail as follows:

8.1.1. Political interference

Northern Areas are administered by the Ministry of Kashmir Affairs and Northern Affairs (KANA) headed by its Minister who is also the Chief Executive for Northern Areas. The various politician ministers in the past have interfered and exerted their pressure for commercial logging of forests and permitting transportation of timber that was illegally felled and converted.

In the recent past Northern Areas Legislative Council (NALC) has been formed with a Deputy Chief Executive as its local head. The situation regarding adverse political pressure and forest management will improve a lot if the executive powers are delegated by the Chief Executive to the Deputy Chief Executive.

8.1.2. Poor capacities

Both the NAFD and local communities – the main stakeholders – have poor planning and management capacities. There is a general lack of planning, and traditional management continues that is resulting in deforestation and degradation. The management plan of the Private Forests in Diamir that has been

developed recently is quite traditional as discussed earlier and will result in further deforestation. The management plans of the protected forests have never been developed. Moreover, the boundaries of the most forests have not been demarcated. Some forestlands have been encroached e.g. in Naltar protected forest.

Although, the department is convinced of the usefulness of the approach of community-based management it could not be put into practice either in case of the Private Forests (owned by communities) or the Protected Forests in which communities have multiple rights.

It is not fair to blame the Forest Department alone for this poor state of affairs. In fact, remote decision-making and lack of political will, leadership, innovative thinking and adequate resources are the genuine reasons. As a result, the Forest Department's structure, strength, mobility, investments and consequent management are quite inadequate.

8.1.3. Weak coordination

There are many stakeholders in forestry sector. Many sectors impact this sector positively or negatively and vice versa. There are many programs and projects of other government agencies and organizations that are relevant to the forestry sector. But linkages between and coordination amongst the various stakeholders is weak. Improved linkage and coordination can help in reducing adverse impacts, sharing of limited resources and getting various kinds of support. Instead of trying to do every thing or most things itself and not achieving the desired results, it will be useful if the Forest Department supports communities and involves NGOs and other stakeholders in carrying out its mandate, which also needs to be reviewed and amended.

8.1.4. Inadequate policy and law and implementation

Northern Areas does not have its approved forest policy that may provide direction and guidance on priorities and approaches. The Pakistan Forest Act, 1927 that regulates establishment and management of the Protected Forests in Northern Areas is quite out-dated. The Gilgit Private Forests Regulation, 1970 also does not help in appropriate planning and management of the Private Forests. The subsidiary legislation e.g. SRO/Notification of 1975 prohibiting felling and removal of almost all economic trees species from the Protected Forests is rather ambitious and unrealistic. Similarly, the Rules under the Northern Areas wildlife Act, 1975 have not been made and enacted so far to enable full compliance and enforcement of the law.

IUCN is compiling customary and statutory laws regarding natural resource management in Northern Areas with the objectives of reviewing and contributing to policy and legal reform. Of all issues, community involvement and empowerment; and sharing of economic incentives with the communities are most important for policy and legal reform.

The other aspect is the weak compliance and enforcement of law that is partly due to its being outdated, unrealistic and non-consultative and partly due to weak structure of the NAFD as well as less than desirable support from the magistracy and police. (Inadequate?)

8.1.5. Lack of objectivity, accountability and transparency in management

These are generic issues that relate to bad governance with its manifestations of corruption; and lack of objectivity, monitoring and sharing information with the stakeholders and public. Most mysteries surround the management of logging leases of the Private Forests in Diamir District. It is rare that the staff has been questioned on result-related performance. Often short-term issues take precedence on long-term priorities.

The nature of daily chores does not allow forest officers to visit forests and spend time in the field. As a result, they are not only deprived of the current knowledge of forests and their issues also do not get opportunity to guide and advise their staff and communities in planning and management. There was a time that the forest officers had to spend certain minimum number of days and nights in the field. They themselves can perhaps try to improve on this aspect but certainly their superiors have the responsibility to help them in this respect.

8.1.6. Lack of involvement of local communities in forest management

It is very clear that the protectionist or policing approach of the Forest Department in NA as elsewhere in Pakistan has failed to conserve and sustainably manage the forest resources. Similar was the case of wildlife in Northern Areas. But a great success has been achieved in reversing the trend and increasing the populations of wild animals by organizing and empowering the local communities; building their capacities in organization, planning and management; helping them in developing and implementing conservation plans; and supporting them in marketing and monitoring.

Although this approach has been successfully applied by the NAFD in case of wildlife and is even admired by the senior officers of the department, it has not been taken forward for implementation in the case of forests. Perhaps, they are looking forward to policy and legal reform to precede their action on this front. But they themselves have to take it forward with the senior bureaucracy.

8.2. Trends and Consequences of Inaction

There is retrogression as far as the management and the state of the natural forests is concerned. The consequences are: deforestation; depletion of grazing capacities; non-availability of wood for local timber and fuel-wood needs; low watershed values; sedimentation of reservoirs and or floods; low tourism values; adverse impact on agriculture in valleys; enhanced poverty and environmental insecurity and consequent depopulation.

8.3. Past, Present and Planned Interventions

8.3.1. Farm Forestry

- m AKRSP's farm planting work in Northern Areas.
- m NAFD's social forestry work in mid 1990's and current project
- m NAFD's roadside planting and block planting.

8.3.2. Community-based management of natural forests

Planned for Dashkan – Mushkin – Tarbuling (DMT and Basho forests) – management planned already prepared by Mountain Areas Conservancy Project (MACP)

8.3.3. Management planning of private forests

Three working schemes and a working plan of private forests in Diamir districts (2002 – 2013)

8.3.4. Regulation of timber harvesting and disposal from private forest

This is regulated by Gilgit Private Forests Regulation (1970) but it has not been effective.

8.3.5. Ban on commercial logging from 1992 – 2000 (2001)

Monitorium on commercial logging was imposed by the Federal Government. It has met partial success since regular felling through the NAFD stopped but illegal felling, although on small scale, continued.

8.3.6. Institutional strengthening and skill development

An Ex-officio Chief Conservator of Forests (CCF) of NAFD was hired from 1996 to 1999. A proposal for restructuring of NAFD including creation of the post of CCF is under the consideration of Northern Areas Administration since 2001-2002.

8.3.7. Forest policy and improvement in legislation

Policy and legal review is on-going through Mountain Areas Conservancy Project (MACP)

8.3.8. Development initiatives

Over the last decade or so there have been a number of initiatives, which depart from traditional approach of policing natural resources and alienating local communities who traditionally depend on these resources to meet their subsistence needs. The government agencies, conservation NGOs, donor agencies and local communities have now realized that these resources will probably not survive, if conservation and management of forests of this region remained only in the hand of government functionaries. A number of organizations have been active in promoting participatory conservation and sustainable development in NA. The organizations include the Aga Khan Rural Support Programme (AKRSP), The World Conservation Union (IUCN), World Wide Fund for Nature (WWF) and Himalayan Wildlife Foundation (HWF). Both IUCN and WWF have played a significant role in introducing conservation of biodiversity with involvement of local communities and have been active in building capacity of the government agencies and rural communities in conservation and sustainable use of natural resources. In addition, there are some local NGOs, CBOs and Welfare Committees, which have been active in forest resources, conserving wildlife and fisheries of this region.

All these initiatives have had varying degree of success in terms of winning the support of local communities and maintaining biodiversity of the area. It is not possible to list every single initiative, but some of the prominent initiatives/projects are discussed here on the basis of their input in conserving natural resources in NA.

8.3.9. Forest department's development portfolio

Secretary heads the Forest Department and Conservator Forest technically administers it. Field staff is posted in all the five districts. Department is mandated to manage the public sector and private forests through their Field Staff. Department is also responsible to provide services in farm forestry, soil conservation, watershed management, maintains nurseries for forest plants, wildlife management and national parks management.

8.3.10. AKRSP and other NGOs' initiatives

AKRSP was the pioneer in mobilizing local communities and implementing sustainable development agenda at the grass root level through collective actions. The objective of their programme is to improve the lives of the mountain people of this remote region. Presently, AKRSP covers most of the NA and has established more than 1500 Village Organizations (VOs) and 900 Women's Organizations (WOs). It has built managerial and technical skills of the villagers to enhance land productivity through natural resource management activities by focusing on agriculture, livestock, forestry, and fisheries. Though the focus of AKRSP has been on sustainable development, many of its programmes are contributing to raising environmental conservation awareness among the masses. For example, development of land, forest plantations, farm forestry, agriculture, etc.

More importantly AKRSP has helped other organizations and NGOs to initiate NRM projects in partnership with the local communities and NA Administration. NA Forest Department, IUCN, WWF, and HWP, all have benefited from the social infrastructure created by the AKRSP and have started various conservation and sustainable use programmes with assistance and support from the AKRSP, particularly in introducing these organizations to VOs and WOs in NA.

IUCN Pakistan has been active in promoting environmental conservation in NA since 1986, first working with the AKRSP on introducing community forestry and later implementing field projects for biodiversity conservation in collaboration with NA Administration, AKRSP, Forest Department, WWF, HWP, and local communities. Three of the IUCN's important initiatives are Biodiversity Conservation Project, Mountain Areas Conservancy Project (MACP) and Northern Areas Strategy for Sustainable Development (NASSD).

Similarly WWF Pakistan has also initiated several projects focusing on community-based conservation of natural resources and social forestry. A number of other organizations have been active in promoting participatory conservation and sustainable development in NA

8.3.11. Mountain Areas Conservancy Project (MACP)

The project is facilitating community-based management of biodiversity including forests. DMT and Basho forests are targeted and IUCN is discussing the arrangement with NAFD for implementing these.

8.3.12. Northern Areas Strategy for Sustainable Development (NASSD)

The strategy will provide a framework for conservation and sustainable management of natural resources including forests, protection of environment and sustainable development in Northern Areas.

8.3.13. Forestry education

Training of forestry professionals and technicians from Pakistan Forest Institute (PFI) and forest schools respectively.

8.3.14. Forestry research

Northern Areas has not received desired attention except for trail of some species and production of planting material for farm forestry.

8.3.15. Gilgit information resource centre

The centre has been established by WWF-P. It is raising awareness of the issues of deforestation and degradation of natural resources.

8.3.16. Assessment for managing as a model forest

IUCN has assessed the possibility of practicing the approach of establishing and managing model forests in Northern Areas. A Canadian expert has conducted the assessment. NAFD intends to designate and manage Naltar forest in Gilgit District and Basho forest in Baltistan District as model forests.

8.4. The Way Ahead

Management of forests in Pakistan in general and in NA in particular in a rational and sustainable manner is one of the critical challenges faced by the government and people both. Now it is the need of the hour to be realistic in tackling it. Forest losses mainly originate from out side forestry sector, and they are certain to continue in near future too. The immediate need is for constructive interventions and support for actions that will reduce damage while laying the foundations for the stabilization and ultimate sustainable management of the remaining forests. Many of such interventions have already been identified to provide an agenda for immediate and urgent action.

The following actions aims to make the best use of limited resources by:

- m Assessing present and future needs and systematically evaluating the land's ability to supply them;
- m Promote the regeneration and management of degraded forestlands in collaboration with local communities to meet their needs and goals, providing assistance and training where required;
- m Identifying and resolving conflicts between competing uses, between the needs of individuals and those of the community, and between the needs of the present generation and those of future generations;
- m Seeking sustainable options and choosing those that best meet identified needs;
- m Planning to bring about desired changes;
- m Learning from experience.

While the following two principles would be helpful in sustainable management of forests in NA.

- m Firstly, harvesting performed compatibly with resource renewal is the main way of enhancing the ecosystem and protecting it against other destructive uses. The possibility to secure resource in the long term is also a decisive argument for government to put into place policies (sustainable policies) for forest management.
- m Secondly, the need to harvest forests for development within the framework of sustainable forest management entails the need for all the users or economic agents that depend on it to reach a compromise. The most important non-technical condition for success is that the forest resources and their conservation must be exploited in a way that attracts the broad consensus of the local communities, contractors, government representatives and the forest managers/silviculturists.

8.4.1. Collaborative management of Protected Forests

Though the local people have some rights for their domestic needs in protected forests of NA but these forests are managed exclusively by the forest department of NA and these people are not involved in any proposals for the management of these forests. As it is established fact that alienating local people in forest management will not work satisfactorily unless local people feel that their legitimate demands are being met and that they are obtaining a fair share of the benefits. Therefore, it is imperative to involve local communities living in and around the protected forests for participatory/ collaborative management of forests. It is recommended to develop Joint Forest Management (JFM) Plans for all protected forests of NA.

8.4.2. Community-based management of Private Forests

As already mentioned that like protected forests, private forests of Diamir district are also managed by the Forest Department, NA. This arrangement has resulted into the attitude to take the remaining forests sooner than latter. There is an urgent need to return back the management of private forests to the local custodian communities. Forest department should act as advisor and facilitator in management of these forests. Entrusting management of these forests to owners and communities will help in restoring their confidence. These simple initiatives will pave way and help for joint management of the protected forests of NA also.

8.4.3. Farm forestry

Northern Areas are in scarcity of natural forestry resources and farm forestry play an important role to bridge that gap. Firewood being a major source of energy in the NA, its sustained supply can be ensured by raising community based fuel wood block plantations together with farmland plantation without jeopardizing agricultural productivity. Multi-purpose trees be introduced which suits local environments and provide fuel wood, timber and forage to meet the needs of the rural communities. This will not only beneficial by reducing pressure on natural forests, but also provide easy access, particularly for women to collect firewood for their daily use. Involvement of local women in raising these plantations should, therefore, be quite beneficial.

8.4.4. Consultative planning mechanisms including sectoral and thematic roundtables / interests groups

Forests in NA are depleting day by day. The fundamental reason for the present condition is the bureaucratic system to manage the forests, which needs to be reformed immediately. The prerequisites are; community involvement in decision making, rights of forest owners, tenants, women; role of civil society organizations in conservation, and tolerance for others points of view will make this process work.

Therefore, setting up of a "Forest Roundtable" as a consultative mechanism and a platform to discuss the wider forest issues at NAs level would be helpful. The goal is to reach to a consensus as to how to deal with issues related to forest development, management and harvest on a sustainable basis and role of communities to be identified. This consultative forum by virtue of their makeup is primarily advisory in nature, but they can function effectively to have a strong influence on decision-making. For the sustainability of such type of consultative forums the following four conditions must be satisfied:

- m a. Government has to accept its role and responsibilities as a consultative forum in promoting public participation in decision-making by notifying it as "Roundtable".
- m b. The forum should be representative of all stakeholders and it is not political;
- m c. Sustainability of this forum must be thought of seriously;
- m d. Transparency of the processes.

8.4.5. Alternates of timber, energy and grazing

Presently natural forests of NA are under pressure both from domestic and commercial exploitation. Traditionally people in Hunza, Ghizar and Baltistan used poplar and other farmland trees as timber for construction purposes. This traditional approach should be encouraged and multipurpose trees should be made available in nurseries and supplied to them. Government of Pakistan should abolish taxes and duties on the import of construction grade timber.

Energy conservation through its efficient-use (e.g. introduction of energy efficient stoves, increased insulation in housing design and architecture) and development of alternate energy sources like hydropower, solar energy and LPG should be encouraged with a view to reduce demand and pressure on forest resources.

The practice of stall-feeding is already in vogue during winter months in the Northern Areas. This useful practice should be encouraged further through an increase in silage/hay making and perennial fodder supply base coupled with breed improvement programme. This will help to reduce pressure of indiscriminate grazing on forest and range resources. Stall-feeding also improve animal efficiency. Use of appropriate feed supplements and concentrate should be introduced in order to redress the problem of nutritional imbalances and deficiencies.

8.4.6. Alternative sustainable livelihoods

A sustainable strategy for management of natural resources requires that conditions be created for a production system that can ensure an enhanced but stable flow of

products and services, without degrading or depleting the potential of the forest resources base in the long run. Alternative income generation activities like bee keeping, mushrooms cultivation; kitchen gardening, off-season vegetables, farmyard poultry, etc may be introduced with the objectives to reduce pressure on forestry resources as well as alleviating poverty. Due attention be given to income generation potential of Non Timber Forest Products (NTFPs), particularly for rural women. This will help in alternate sustainable livelihood and conservation of forests. Special trainings programmes be arranged in cultivation, collection, processing, grading and marketing of these products.

Integrated development programmes may be prepared, processed and implemented for entire NA, to increase employment opportunities. People living in and around the forests should specially be involved in any activities of the Social Action Programme (SAP) being implemented in their jurisdiction.

8.4.7. Awareness and education

Education and awareness are closely linked to achieving success in conservation initiatives. Therefore, if national and provincial efforts to promote forestry are to succeed, policy makers, planners, communities, and individuals must understand and appreciate the value of forest, and the causes of its decline. Generally, there is lack of awareness among these people about the social and economic consequences of the loss of forest. Other avenue to pursue is the increase of environmental literacy in local communities of NA. This could be done through both formal and informal education, which will improve public understanding of the links that forests have with every aspect of daily life, and how our individual actions can lead to depletion of forestry resources.

Given the low literacy rate in many parts of the NA, informal education will be a vital component for any strategy for conservation education and awareness. This could be tailor made to address local issues, and help find suitable responses to questions and issues.

8.4.8. Institutional strengthening and skill development

There is an urgent need to restructure and reorganize the Forest Department of NA, since, in present condition Forest Department is not in position to cope with the state of affairs. Creation of a non-political forestry commission consisting of outstanding integrity and knowledge of forestry situation in NA would be one the remedial measures against any political threat to its forests. Other recommendations would be:

- m Existing Forest-service staff will have to change attitudes, learn modern management techniques and learn to respond to the new demands upon them. It is no longer possible to retreat to closed technical world inside the forest boundaries. Forest officials will involve collaboration with and participation of communities and other organisations, both public and private, and forestry service will have to redefine its role to comprehend planning, developing an enabling environment, providing technical support and monitoring.
- m Opportunities for continuous professional and management training for the personnel of FDNA.
- m Foresters and forest guards should be trained in the forest schools before their posting in the field.

- m Encourage the staff that shows outstanding performance through advanced education abroad as incentives.

8.4.9. Increasing investment on forestry resources including establishment of forest development fund

From investment on forestry point of view, forestry has got lowest priority in NA financial allocations. Without substantial amounts of funding from forest royalties or other government sources, it is unlikely that Forest Department and other organisations will be able to meet the challenges faced in forestry sector. Strengthening and reforms of forest services are essential if they are to be able to make the contribution required of them in the future. The most basic requirement is that forestry should be given a greater allocation of government resources. A reformed royalty system, in which all or most of the proceeds would be retained by the forestry sector, could increase the total funding available. In this regard idea of creation of a permanent Forest Development Fund (FDF) would be self-sustainable source of funding for forestry activities.

8.4.10. Enabling environment – forest policy and improvement in legislation

Enabling policies and an effective legal framework are key to promoting conservation and sustainable use of forestry resources. The existing policies and legislation in NA are inadequate to meet the current challenges in forest management. There is need to review all the existing sectoral policies and legislations to identify the gaps. To some extent, similar work has already been done in NWFP. There is need to build upon and learn from these initiatives and develop appropriate policies and an effective legal framework for promoting and sustainable use of forestry resources. The FDNA should improve the system of detection and prosecution of forest offences. The department should also enlist the support of local communities in the prevention and detection of forest offences through joint management programmes, with appropriate legal cover and incentives. There is also need to integrate forestry concerns into sectoral plans and programmes being implemented in NA.

8.4.11. Database, monitoring and evaluation

From the beginning, Protected Forests of NA are with out any management plan and inventory while very raw and unrealistic surveys have taken place in Private Forests of NA only focussing on commercial aspect of the forests. The need for an updated baseline assessment and sustainable management of the remaining forest resources for the region of the Northern Areas is severely felt. Therefore, there is need to develop a simple and workable database with major indicators on the; (1) Spatial structure of the forests. (2) Flora and fauna (3) Natural habitat/ecosystem (4) A consolidated map of forest areas in NA (5) Basic set of data for regional forest function planning (6) Priority areas, which need immediate attention for natural/artificial regeneration or commercial exploitation to meet local wood requirements, etc. Forest officials will develop data collection formats, methods and computer software packages for use. Standard data collection procedures currently in use Pakistan will be implemented. A major effort should be made to develop and institutionalise the database to support the work of forest officials for better

management of forests. The database should further be supported with satellite images and GIS through NADP GIS lab situated at P&D department Gilgit.

A regular monitoring and evaluation system has to be established for the department. The ideal characteristics of a monitoring system should be: meaningful variables, accurate results, reliable system, able to detect change, affordable, easy to implement and appropriate to management capabilities (IUCN 2002). While evaluation to see results and their relevance, effectiveness, efficiency of activities and personnel, impact and its sustainability.

8.4.12. Integrated management

Integration of agriculture, livestock and grazing, eco-tourism, watersheds, biodiversity and PAs, Gender and poverty reduction in forest planning and management is necessary. Following considerations are important for conservation of forest related biodiversity:

- m No exotics in natural forests. Only tried exotics could be planted on found lands or areas outside of natural forests
- m No introduction of species even outside of natural forests without long-term trail and positive results. Else the species may become invasive
- m Wild relatives of crops and fruit trees found in forests as ground vegetation or under story should be identified and conserved.
- m No cutting of green fruit bearing trees such as chilghoza
- m Extraction of medicinal plants from forests should be regulated and benefits must be shared with the local communities.
- m Preference must be given to broad leaved trees in regeneration and afforestation programs subject to suitability of the species for the specific site at the least broad leaved species must be mixed with the conifers

8.4.13. Improving efficiency in the use of wood

BACIP has identified a total of 60 home-improvement products and 40 have been tested in the field. Ten products are designed to enhance the fuel and thermal efficiency of the rural houses. These products complement fuel wood and forest conservation practices and reduce smoke emission to the environment. Fifteen of the 40 home improvements directly improve the quality of life of women and children, reducing time and efforts required to carry out household chores and facilitating a more comfortable, healthy and productive domestic environment. Various studies have substantiated that BACIP products improve health, benefit women, help environment conservation and smoke reduction efforts and contribute poverty alleviation.

Though promotional efforts, around 4500 home improvement products-75% financed by the beneficiaries themselves – have been installed in over 1300 households. Training to artisans, entrepreneurs and other have been imparted to manufacture / install BACIP products.

8.5. Implementation - Priority Considerations

- m Conserve whatever forests and forest biodiversity is left.
- m Restore degraded forests. (Prioritise forests for restoration through a selection criteria)

- m Promote non-exploitative uses such as eco-tourism as alternatively sustainable livelihood.
- m Promote sustainable use for NTFP, especially non-wood products (chilghoza, honey, sea-buck thorn) and medicinal plants.
- m Ensure sustainable use for subsistence requirements (as long as within production capacities)
- m Consider environmental values before deciding on commercial felling such as biodiversity, watershed, eco-tourism values, desertification, climate change, soil conservation, landslides, microclimate, landscape and shade
- m Consider social aspects in exploitation of forest resources such as equity, poverty, security

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ANNEX 1:

CLIMATE OF NORTHERN AREAS

Rainfall in mm from 1981-1997													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Gilgit	2.9	4.5	15.0	22.5	26.0	10.6	14.8	14.4	9.0	9.6	3.7	6.1	139.1
Astore	37.9	41.5	98.2	76.5	69.9	28.4	33.5	28.7	21.6	28.6	22.2	38.5	525.5
Skardu	29.7	25.4	45.0	24.3	23.7	11.2	12.1	14.6	11.2	12.9	10.6	18.6	239.3
Bunji	4.4	5.3	13.6	25.0	26.9	14.2	21.4	21.7	10.7	11.1	5.0	8.6	167.9
Chilas	8.4	12.7	30.0	31.9	27.7	7.6	11.6	12.4	3.0	12.8	4.0	11.1	173.2
Gupis	5.2	6.7	9.2	20.4	24.0	8.2	11.4	15.8	8.5	3.8	1.3	4.4	118.9
Karimabad	4.2	4.3	7.0	21.6	23.2	13.3	21.7	26.5	13.7	4.6	1.1	3.7	144.9
Misgar	6.2	6.8	13.7	18.7	25.3	4.7	10.1	10.6	6.8	6.6	5.1	14.1	128.7

Mean Maximum Temperature													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Gilgit	9.2	12.3	17.7	23.7	28.0	33.9	36.1	35.4	31.9	25.3	18.0	11.2	23.6
Astore	2.4	4.0	8.4	14.6	19.2	24.5	27.1	27.0	23.5	17.2	11.1	5.0	15.3
Skardu	2.6	5.4	11.7	18.3	22.5	28.2	31.5	31.2	27.2	20.0	12.7	6.0	18.2
Bunji	9.6	12.5	17.9	24.0	28.0	33.7	36.2	35.7	32.5	25.7	18.5	11.8	23.9
Chilas	12.3	14.5	20.1	26.1	31.1	37.6	39.6	38.6	35.1	28.4	20.9	13.7	26.5
Gupis	4.1	6.6	12.2	18.5	23.0	29.0	32.1	30.9	26.4	19.9	13.6	5.8	18.5
Karimabad	2.1	4.3	9.0	16.1	20.2	25.8	28.5	29.4	23.8	18.1	10.7	4.3	16.0
Misgar	-1.1	1.7	7.2	12.3	16.3	21.2	24.6	25.2	20.8	14.0	6.9	0.5	12.5

Mean Minimum Temperature													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Gilgit	-2.5	0.6	5.7	9.4	11.9	15.0	18.5	17.9	13.0	6.8	0.8	-1.9	7.9
Astore	-7.5	-5.7	-1.1	3.5	7.1	11.0	14.5	14.6	10.5	4.4	-0.7	-4.5	3.8
Skardu	-8.5	-5.0	1.5	6.5	9.6	13.5	16.6	16.2	12.0	4.7	-1.6	-5.4	5.0
Bunji	0.1	2.7	7.6	12.1	15.2	19.6	23.4	22.8	18.1	11.3	5.2	1.4	11.6
Chilas	6.6	9.0	14.2	20.0	24.8	31.0	33.5	32.6	28.8	21.5	14.0	7.9	20.3
Gupis	-0.5	1.9	7.2	13.0	17.1	22.5	25.4	24.4	20.0	13.6	7.6	1.4	12.8
Karimabad	-1.0	0.8	5.7	11.6	15.4	19.8	22.4	23.3	17.6	12.9	6.6	1.2	11.4
Misgar	-7.2	-4.0	0.9	6.0	9.8	14.6	17.8	18.4	13.7	7.0	0.6	-5.0	6.0



ANNEX 2:

EXTRACTS FROM THE FOREST ACT, 1927 (ACT NO. XVI OF 1927)

28. Formation of village-forests

- (1) The Provincial government may assign to any village-community the right of Government to or any land, which has been constituted a reserved forests, and may cancel such assignment. All forests so assigned shall be called village-forests.
- (2) The Provincial Government may make rules for regulating the management of village-forests, prescribing the conditions under which the community to which any such assignment is made may be provided with timber or other forest-produce or pasture, and their duties for the protection and improvement of such forest.
- (3) All the provisions of this Act relating to the reserved forests (so far as they are not inconsistent with the rules so made) apply to village-forests.

29. Protected forests

- (1) The Provincial Government may, by notification in the official Gazette, declare the provisions of this Chapter applicable to any forests-land or waste-land which is not included in a reserved forest, but which is property of Government, or over which the Government has proprietary rights, or to the whole or any part of the forest-produce of which the Government is entitled.
- (2) The forestland and wasteland comprised in any such notification shall be called a "protected forests".
- (3) No such notification shall be made unless the nature and extent of the rights of Government and of private persons in over the forestland or wasteland comprised therein have been inquired into and recorded at a survey or settlement, or in such other manner as the Provincial Government thinks sufficient. Every such record shall be presumed to be correct until the contrary is proved:

Provided that, if, in the case of any forest-land a waste land, the Provincial Government thinks that such inquiry and record are necessary, but that they will occupy such length of time as in the meantime to endanger the right of Government, the Provincial Government, may pending such inquiry and record, declared such land to be a protected forest, but so as not to bridge of affect any existing rights of individuals or communities.

30. Power to issue notification reserving trees, etc. – The Provincial Government, may by notification in the official Gazette:

- (a) declare any trees or class of trees in a protected forest to be reserved from a date

fixed by notification;

- (b) declare that any portion of such forest specified in the notification shall be closed for such term, not exceeding thirty years, as the Provincial Government thinks fit, and that the rights of private persons, if any, over such portion shall be suspended during such term, provided that the remainder or such forests to sufficient, and in a locality reasonably convenient, for the due exercise of the rights suspended in the portion so closed; or
- (c) prohibit, from a due fixed as aforesaid, the quarrying of stone, or the burning of lime or charcoal, or the collection or subjection to any manufacturing process, or removal of, any forest-produce in any such forest, and the breaking up or clearing for cultivation, for building, for herding cattle or for any other purpose, of any land in any such forest.

31. Publications of translation of such notification in neighbourhood – The Collector shall cause a translation into the local vernacular of every notification issued under section 30 to be affixed in a conspicuous place in every town and village in the neighbourhood of the forest comprised in the notification.

32. Power to make rules for protected forests. The Provincial Government may make rules to regulate the following matters, namely:

- (a) the cutting, sawing, conversion and removal of trees and timber, and the collection manufacture and removal of forest-produce, from protected forests;
- (b) the granting of licences to the inhabitants of towns and villages in the vicinity of protected forests to take trees, or other forest-produce for their own use, and the production and return of such licence by such person;
- (c) the granting of licences to persons felling or removing trees or timber or other forest-produce from such forests for the purposes of trade, and the production and return of such licences by such persons;
- (d) the payments, if any, to be made by the persons mentioned in clause (b) and (c) for permission to cut such trees, or to collect and remove such timber or other forest-produce;
- (e) the other payments, if any, to be made by them in respect of such trees, timber and produce, and the places where such payment shall be made;
- (f) the examination of forest-produce passing out of such forests’
- (g) the clearing and breaking up of land for cultivation or other purposes in such forests;
- (h) the protection from fire to timber lying in such forests and of trees reserved under section 30;
- (i) the cutting of grass and pasturing of cattle in such forests;
- (j) hunting, shooting, fishing, poisoning water and setting traps or snares in such forests, and the killing or catching of elephants in such forests in area in which the elephants’ Preservation Act.1879, is not in force;
- (k) the protection and management of any portion of a forest closed under section 30; and
- (l) the exercise of rights referred to in section 29.

33. Penalties for acts in contravention of notification under section 30 or of rules under section

- (1) Any person who commits any of the following offences, namely:
 - (a) fells, girdles, lops, taps or burns any trees reserved under section 30, or trips off the bark or leaves from, or otherwise damages, any such tree;
 - (b) contrary to any prohibition under section 30, quarries any stone, or burns any lime or charcoal, or collects, subjects to any manufacturing process, removes any forest-produce;
 - (c) contrary to any prohibition under section 30, breaks up or clears for cultivation or any other purpose any land in any protected forest;
 - (d) sets fire to such forest, or kindles a fire without taking all reasonable precautions to prevent its spreading to any tree reserved under section 30, whether standing, fallen, or to any closed portion of such forest;
 - (e) leaves burning any fire kindled by him in the vicinity of any such tree or closed portion;
 - (f) fells any tree or drags any timber so as to damage any tree reserved as aforesaid;
 - (g) permits cattle to damage any such tree;
 - (h) infringes any rule made under section 32;

shall be punishable with imprisonment for a term, which may be extended to six months or fine which may extend to five hundred rupees or with both.

- (2) Whenever fire is caused wilfully or by gross negligence in a protected forest, the Provincial Government may, notwithstanding that any penalty has been inflicted under this section, direct that in such forest or any portion thereof the exercise of any right or pasture or to forest produce shall be suspended for such period as it thinks fit.

1[33-A. Power of court to evict trespassers.

- (1) A Court convicting an accused person of an offence under clause (e) of sub-section (1) of section 33, shall direct the accused, if he or any other person on his behalf be in possession of the land in respect of which he is convicted to deliver possession of the same within such period not exceeding thirty days as a Court may fix in this behalf, to the prescribed Forest Officer, and to remove within the said period any encroachment which the accused may have put up or erected on such land.
- (2) Any accused person directed by a Court under the last preceding sub-section to deliver possession of land in a Protected Forest to the prescribed Forest Officer or to remove therefrom any encroachment made by him, who fails to deliver the land or to remove the encroachment within the period specified by the Court under the said sub-section:
 - (a) may, by order of the Court, be ejected from such land and any encroachment made by him on such land may be removed or demolished with such force as may be necessary and in such manner as may be prescribed; and

- (b) shall also be liable to a fine which may extend to one hundred rupees for every day, after the period fixed by the Court under the provisions of sub-section (1) has expired, that he remains in possession or occupation of the land in respect of which he has been convicted or fails to demolish or remove the encroachment on such land].

34. Nothing in this Chapter to prohibit acts done in certain cases – Nothing in this Chapter shall be deemed to prohibit any act done with the permission in writing of the Forest-Officer, or in accordance with rules made under section 32, or except as regards any portion of a forest closed under section 30, or as in the exercise of any right recorded under section 29.

ANNEX 3:

COMMUNITY MANAGEMENT OF CHALT-CHAPROTE FORESTS IN NORTHERN AREAS OF PAKISTAN

by Ali Gohar and Abdul Latif Rao

1. Introduction

The management of *Chalt - Chaprote forests* have changed hands from the *Mir* family of Nagar in Northern Areas of Pakistan to the Forest Department in 1974, joint management by the Forest Department and local communities and to exclusive management by local communities. There are important lessons learned in the various kinds of management regimes. These lessons will help in finding an appropriate way ahead for sustainable management of these forests as well as for replication elsewhere.

The forests are located in Chalt –Chaprote Valley, about 45 km from Gilgit Town, in Hunza / Nagar area. These valleys fall in almost extreme north area that supports natural forest cover. There are two clusters of villages comprising six villages i.e. Chalt Bala, Chalt Paen, Mamoshadiding, Sonikote, Rabat, and Chaprote Bala, with a population of about 5, 000 persons in 300 households. They speak Shina language. The major races are Sheen and Yashkuns. These villages are situated on the right side of Hunza River.

The main source of livelihood of the local people until recent past was agriculture and animal husbandry. Human population has been growing rapidly that has resulted in further fragmentation of small land holdings. This has increased the dependence of local people on forest or off-farm jobs. The various clans had been living in great harmony and it is only in the recent past those conflicts and rifts have started taking place between Sheens and Yashkuns.

This area was rich in forest resources and pastures. Presently, the forest cover is not more than 2,500 ha (Klotzli, Fetal 1989) in the form of either scattered trees or small clusters of conifers, mainly dominated by spruce (*Picea smithiana*). Other species include blue pine-kail (*Pinus wallichiana*), Juniperus species, birch *betula*, wild almond, ash, luni (*lunicera*) and wild willows. Kail has been logged heavily.

2. Past Management

2.1. Management by Mirs

Chalt-Chaprote valleys were part of Nagar State that was ruled by *Mir* family until 1972. The forest and other natural resources were owned by the *Mirs* but the people enjoyed the right of grazing, collection of dead and fallen wood and minor forest produce for their domestic use. However, standing trees could only be cut with the permission of the *Mir*. Severe punishment was given to the violators. The people

could not sell wood. Only some forest minor produce such as black cumin, dried mushroom, and edible pine nuts were collected for sale.

However, *Mir* himself could gift or sell few trees to *Mir* of Hunza or the local petty contractors. Occasionally, he would allow cutting and removal of a few trees for meeting the needs of local communities. One watcher (*Rakha*) appointed by the *Mir* used to control illicit cutting and other violations effectively.

Although, the management system provided meeting of local needs of the people and their cooperation, it did not involve their participation in the management. There was not a strict control on poaching and hunting of wildlife but it was conserved well.

There was no restriction on the number of livestock to be grazed. The poor people could collect cumin, grass, mushroom and chilgoza to earn money from their sale while rich families used more timber for constructing better houses. This system was ultimately ensuring almost equitable use of resources. No outsider was allowed to exploit the local natural resources.

As a result, the forest was rich and diverse in flora and fauna including and Himalayan black bear, snow leopard, wildcat, markhor, Himalayan ibex, wolf, fox, and a large number of species of birds.

2.2. Management by the Forest Department

The Forest Department took over the control of Chalt - Chaprote forests in 1974 after the Nagar State was merged. It opened the forests to excessive use by the local and outside elite with the purpose of earning revenue. The sale of wood to local people as well as to petty wood contractors also started. Those who benefited the most included local firewood contractors, local transporters, local wood traders, criminals and the forest staff. The marginalized and right-minded people suffered in the process.

3. Joint Management by Community and Forest Department

A small group of local people discussed their concerns in December 1985 regarding deforestation, and shared their concerns with the notables from six villages of Chalt -Chaprote valleys. A meeting of 40 notables was held on March 27, 1986 at Chalt and decided to form a Forest Reform (*Islahi*). The members of the *Islahi* Committee elected their office bearers, consisting of the President, Vice President, General Secretary and others. The committee also constituted various sub-committees for different functions including protection of forests, assessing timber needs of local people, collection of fines, auctioning of confiscated wood etc. The Committee drafted the following rules and presented the same in a general body meeting on April 18, 1986:

- m No one would use the forest for any commercial purpose.
- m A forest check-post would be established to control the movement of timber from Chalt - Chaprote forests. A volunteer corps of 24 persons would control deforestation and movement of wood out of the forest for commercial purpose, and regulate extraction of NTFP by the local people.

- m Individuals, whether locals or outsiders, if found guilty under the rules, would be fined @ Rs. 25 per maund (app. 40 kg) of firewood, and Rs.500 per tree. The wood would also be confiscated and disposed of by the Committee among local community through open auction.
- m Each family could collect one back-load of fuel wood in a week for domestic use.
- m Timber could be extracted on obtaining the approval of the Forest Department through the Committee that would be granted after visiting the site and making assessment of the requirement for timber.

These draft rules and procedures were agreed by the then Conservator of Forest, Northern Areas. The Deputy Commissioner agreed to authorize the establishment check-post. This was the beginning of participation in the management of the Chalt – Chaprote forests by the local people in 1986.

Initially, the Islahi Committee deputed the identified persons for manning the check post and for watch and ward of the forests. Later, paid watchers (*Chowkidars*) were appointed at the check post. The forest staff continued to play their protection role and did not allow cutting of tree to any non-locals. This system worked smoothly till 1990 when the then Conservator of Forests was transferred.

4. Community Management

The successor Conservator of Forests strongly opposed the involvement of the local people in forest management. He also refused to issue any permit to the local people for their basic needs. The Islahi Committee responded by banning the entry of forest staff, effective December 1988, and taking over the complete management of the forest including issuance of permits for cutting and removal of timber to the locals. The Forest Department registered forest offence cases against the people who harvested trees with the permission of the Committee. As a result, a rift started between the Forest Department and the people. However, the Committee and the people stuck to their stand and continued to manage the forests.

The local communities felt that protecting the forests alone by villages in Chalt Valley was difficult in practice as these were situated at a distance of seven km away outside the lower limits of the forests. As a consequence, the management responsibilities were divided between the villages. Chaprote and Rabat villages took over responsibilities for watch and ward of the forests, and Chalt villages assuming the control of the check post. This division of responsibilities created mistrust between the two clusters of villages. Consequently Chaprote people established another check post that is manned by them and they also are undertaking the responsibility of watch and ward of the forests.

Chaprote people have tried various approaches during 1990s that included *Mohalla* teams, entrusting the responsibility to local literate, and have finally selected 60 men from Chaprote and Rabat villages to discharge their responsibility effectively.

The community has faced many problems and pressures from within and outside of the community in managing the forests, for example:

- m Opposition by Forest Department and its efforts even to dismantle this approach, fearing that other communities might also take-up the management of other forests.

- m Rifts being created within local communities by the wood contractors and other vested interest (previous beneficiaries).
- m Rapid increase in population and dependence on forest resource, in particular of landless and others without opportunities of earning income. Also, the rich people, who have vested interest, have resisted the community management of the forests.
- m Although use of forest resources decreased to a great extent but it has not been possible to bring it down within sustainable use limits due to lack of technical knowledge and skills that could have been provided by the Forest Department; selling of firewood within the communities (has been stopped since 1998); and arrogance of the communities that has alienated them.
- m The marginalized and disadvantaged persons including the poorest-of-the-poor, physically weak and women have not benefited, rather their problems have aggravated. Some of them have switched over to animal husbandry, resulting in further grazing pressure on the forests.

5. Strengths and Weaknesses of the Various Forest Management Systems

Mirs' Management	Forest Department (FD) Management	Joint Management (FD+Communities)	Community Management
Trained manpower was not required since traditional sustainable use was practiced.	Trained manpower available	Trained manpower not available for joint management at present. But JFM can make available trained manpower due to partnership with FD	Lacks trained manpower and other capacities
Poor access to new technology but that was not required as traditional system was effective	Access to technology	Access to technology because of partnership with FD	Difficult to access technology in isolation
Ownership of the resource and authority for its use	Legal authority	Lacks at present but is required through change in policy and legislation	Lacks <i>de-jure</i> ownership and authority in case of state-owned forests. Only <i>de-facto</i> ownership and use is exercised at present.
Access to finance was possible but was not required.	Access to finance	Access to finance	Difficult to access finance
Long term vision but no formal planning	Vision and long term planning lacking at present	Vision and long term planning is achievable.	Vision but lacks formal planning is constrained.

Mirs' Management	Forest Department (FD) Management	Joint Management (FD+Communities)	Community Management
Objective management	Lacks objectivity	Objective management	Tilted towards meeting community needs, not withstanding sustainable use
Good coordination	Poor coordination	Good coordination	Good coordination internally but poor coordination with FD
Authoritarian approach	Authoritarian approach, alienating communities	Participatory approach	Self governance
Sustainable management	Unsustainable management	Sustainable management	Difficult to manage forest in a sustainable manner if demand is in excess of supply
Political will	Lack of political will	Political will at local level	Political will present but difficult to sustain
Cooperation by communities	Non-cooperation by communities	Cooperation by communities	Cooperation by the members of communities
No operational difficulties	Operational difficulties e.g. mobility, accommodation, physical presence, timely operations	No or less operational difficulties. However, creating and sustaining mutual understanding is difficult.	No operational difficulties
Incentives and motivation	Lack of incentives and motivation for achieving results	Incentive and motivation for communities present. Not the same for the staff of FD	Incentives and motivations present
Flexibility in policy, customary law and procedures	Lack of flexibility in policy, legislation and procedures.	Policy, legislation and procedures yet to be enacted. Flexibility in these is required.	Quite flexible
Low management cost	High management cost	Medium management cost	Low management cost
No externality	High externality	Medium externality	High externality
Non conflicting management	Conflicting management	Non conflicting management	Conflicting management at present
Local needs met	Local needs not met easily and fully	Local needs met	Local needs met
Revenue was a low consideration	Revenue is a major consideration	Revenue is not a key consideration	Revenue is not a consideration

6. Conclusion and the way forward

This is clear that the management of the Chalt - Chaprote forests by the Forest Department was not as effective as during Mirs' period. There was deforestation and degradation of forest resources at the hands of vested interests. The joint forest management by the Forest Department and local communities through the Islahi Committee during the small period was successful. The degradation of local resources prompted community action and resulted in a partnership between them and the forest Department. Since this partnership was informal, it fell apart with change in person heading the first department. The communities lacked both technical and institutional capacity, but took over the control of the forest when Forest Department backed away from partnership as a show of their strength. Because they lacked proper institutions and lacked capacity, they encountered many problems and failed to manage the forest.

The best way forward, therefore, is to revert back to joint forest management. The roles, responsibilities and benefit sharing as well as systems and procedures should be mutually agreed in a transparent and accommodating way and formalized. Legal cover should be provided for effective implementation of this system of management. This has not happened on its own and hopefully a third party can mediate the process and put the community management of this forest back on track.

In any future partnership, the role of the Forest Department should be a facilitating role rather than a command and control role. The Forest Department should build capacity of the communities to manage forests in a sustainable manner.

ANNEX 4:

CUSTOMARY AND STATUTORY LAW ON NATURAL RESOURCES IN THE NORTHERN AREAS AND RECOMMENDATIONS FOR REFORM

by Zahid Hamid and Patti Moore

The Northern Areas (NA) comprise the districts of Gilgit, Ghizar, Skardu, Ganche and Diamir¹. The NA were originally part of Jammu and Kashmir State. Since the creation of Pakistan in 1947, the Government of Pakistan has administered them, although the NA are not part of the territories of Pakistan as specified in Article 1 of the 1973 Constitution. In 1994, an Order of the Government of Pakistan constituted a Council for the NA with powers to make laws relating to municipal functions. The 1994 Order was amended in 1999, subsequent to a decision of the Supreme Court of Pakistan². By the terms of that amendment, the people of the NA have all the fundamental rights contained in the 1973 Constitution, and are also liable to pay taxes imposed by the NA Council or by the Government of Pakistan.

The Government of Pakistan has made Pakistani statutes applicable to the NA through various notifications issued from time to time. The majority of the natural resource-related laws extended to the NA date to the latter part of the 19th century and the early 20th century. Statutory laws governing specific natural resources have been adopted especially for the NA, primarily in the 1970s and 1980s.

At the community and individual levels, customary law remains a vital part of decision-making for natural resource management in the NA.³ Many aspects of customary natural resource law have proven beneficial for conservation and sustainable use and can be appropriately incorporated into statutory law.

Recommendations

Two overarching realities need to be taken into account in reviewing and recommending reform of natural resource law in the NA. One is the concept of community property in natural resources and community management of those resources as practiced in the NA. The other is the fact that, with few exceptions, the statutory laws governing natural resources in NA primarily focus on resource exploitation, rather than on conservation and sustainable use. Integrating these two realities into natural resource law for the NA will help to reduce conflicts over natural resource use and provide for its long-term sustainability.

The soundest long-term option for updating natural resource policy and law in the NA would be to adopt a framework policy and implementing law for sustainable

1. Ghizar was previously part of Gilgit while Skardu and Ganche were previously known as Baltistan.
2. 1999 SCMR 1379: Al-Jehad Trust & nine others vs. Federation of Pakistan & three others
3. See Dr. Huma Haque, "Customary Law Project Report", IUCN Pakistan Karachi, 2002.

use of natural resources and biodiversity conservation. The framework policy and law would establish the fundamental principles and guidelines on which reforms of sectoral policies, laws and notifications would be based. Among other things, a framework policy and law for the NA should require documentation and registration of customary community and tribal property rights in natural areas and resources. It should also provide statutory cover for the natural resource management functions of representative village committees.

Issues to be addressed in the framework policy and law include:

- m securing access and tenure rights to land and natural resources, establishing resource user-friendly procedures for registering rights and resolving conflicts, enabling community participation in decisions about management and use of natural resources in the NA, and sharing benefits derived from the exploitation of natural resources;
- m integrating customary law into statutory law and preserving traditional knowledge related to natural resource management in the NA;
- m providing positive incentives for conserving and sustainably using natural resources in the NA and eliminating perverse ones;
- m enabling and requiring EIA for activities that impact on natural resource conservation and use in the NA;
- m enabling legal trade and controlling illegal trade in natural resources in the NA;
- m prohibiting the introduction of alien flora and fauna species into the NA, and providing for mitigating the impacts of such species that are introduced accidentally;
- m ensuring access to and transparency of information about natural resource management planning and use and measures to conserve biodiversity in the NA;
- m requiring periodic review and reform of policies, laws, regulations, and notifications that govern natural resources in the NA;
- m providing for promoting public awareness of the relevance of conservation of biodiversity and sustainable use of natural resources for livelihoods in the NA.

Protected areas are currently governed by wildlife legislation in the NA. Because protected areas are a tool for conserving both wild fauna and wild flora, it would be advisable to incorporate provisions for protected areas in the framework policy and law. Issues that need to be addressed in protected area law reform in NA include providing for:

- m a comprehensive system plan for protected areas in NA, with categories that take into account different use regimes as well as other requirements of wild flora, fauna, habitats and landscapes as well as all aquatic and terrestrial eco-systems;
- m criteria for the categorization, selection, establishment and management of protected areas, and for environmentally sound development in areas adjacent to protected areas;
- m social and environmental impact assessment prior to establishing or de-classifying protected areas;
- m establishing protected areas through the highest level of legislative or executive action possible, and providing that de-classifying a protected area must be done at the same level, or higher.

Forestry and wildlife are two sectors whose laws will need to be updated, based on the framework policy and law. Specific issues that will need to be addressed in each of those sectors follow.

It is acknowledged that the 1927 Forest Act that has been extended to the NAs long overdue for reform. In the NA, that reform should accommodate community property in forest lands and provide for management that ensures sustainability of the supply of non-timber forest products as well as timber. [Note: The NWFP amendment of the Forest Act that is currently pending approval is a useful reference, but it keeps management authority over forest resources in the hands of the Forest Department and leaves community management at the discretion of government authorities.] Issues that need to be taken into account in forest law reform in NA include:

- m affirming access and tenure rights to land and forest resources, establishing resource user-friendly procedures for registering rights and resolving conflicts, enabling community participation in decisions about management and use of forest resources in NA, and sharing benefits derived from the exploitation of forest resources;
- m appropriately integrating customary law dealing with forest resources into statutory law and preserving traditional knowledge related to forest management and forest resources in the NA;
- m incorporating forestry sector planning into integrated land use and natural resource planning for all of the NA;
- m controlling and mitigating activities that have significant adverse impacts on forest resources in the NA;
- m establishing and managing protected forests within a system of protected areas in the NA [that in turn is linked with Pakistan's national protected areas system];
- m enabling and requiring rehabilitation and restoration of degraded lands in NA, including afforestation and reforestation.

Wildlife legislation also needs to be updated to enable and give statutory cover to community involvement in protection and management activities. In keeping with customary law, the capturing or killing of all wild animals would be prohibited except for specific uses as permitted by the village committees, in accordance with national laws and international obligations on protected species. Issues that need to be taken into account in wildlife law reform in NA include:

- m providing that legislation governs all wild fauna, not only game animals;
- m providing for comprehensive management of wild fauna outside of protected areas as well as inside them;
- m requiring maintenance of viable populations of wild fauna species found in the NA;
- m providing for rehabilitating and restoring degraded habitats and for promoting the recovery of threatened species;
- m regulating taking of all wild fauna and providing measures to ensure compatibility between present uses of wild fauna and their long-term conservation and sustainable use;
- m providing for preserving and maintaining traditional knowledge, innovations and practices of wildlife management, and enabling community management of wildlife resources and the equitable sharing with communities of benefits derived from their effective management of wildlife.

Reforms of forestry and wildlife laws will have to address the links between wild fauna and the forests that are their habitat and provide for institutional structures that ensure coordination for effective management of wild flora and fauna.

Specific elements of customary law that should be incorporated into statutory law in the NA include:

- m authorizing representative village committees to appoint one member of the community (referred to as "zaitu", "lorapa", "tarangan" or "zuni" in different areas) to be responsible for coordinating community activities that involve natural resource management decisions. The appointed community member would, for example, decide the dates of departure and return of the livestock to and from summer pastures. These individuals would also protect crops and trees and, in case of any damage, report the matter to the village committee. The village committees would also select "chowkidars" who would (a) inform and collect the villagers for any event requiring collective labour (like cleaning and repair of water channels) and (b) regulate the distribution of irrigation water. Disobedience of the instructions of either the appointed "warden" or the chowkidars would be reported to the village committee. The village committee would be empowered to impose fines payable in cash or kind for violations of grazing and water rights, use of timber and non-timber forest resources, and the ban on capturing and killing wild animals. Fines paid would remain with the village that imposed and the village committee would be accountable for their use;
- m regulating grazing on a seasonal basis, with livestock moving to higher summer pastures as the snow melts in May and returning to the villages and nearby winter pastures in September. Large animals would not be allowed to graze in pastures with high/steep slopes, while smaller livestock would be prohibited from using pastures close to forests. In the Rajgiri Areas⁴ and the Tribal Areas⁵ where village pastures are owned by different tribes residing in the village, members of the owner tribes would be allowed to graze their animals and utilize wood, grass, fruits and herbs from the pastures for their domestic consumption only. Villagers would enjoy the same rights with primary or "maliki" rights of use in the particular pasture located in the Settled Areas⁶ where the Government owns all pasture lands. "Dire need" use rights would be available to non-owners and residents of surrounding villages in case of drought or other emergency conditions, on payment of rent or "lagan" in cash or kind. Grazing rights would be enforced through the representative village committees.
- m regulating distribution of available irrigation water on the basis of "nobat" or turn, as allocated by the representative village committee.

4. Punial, Ishkoman, Gupis, Yasin, Hunza, Nagar and Gojal.
5. Darel and Tangir.
6. Gilgit, Godai/Bubin, Khaplu/Kharmang/Shigar and Rondo.

ANNEX 5:

CONCEPT PAPER STRENGTHENING NORTHERN AREAS FOREST DEPARTMENT (NAFD) PROJECT

Northern Areas are endowed with coniferous, broad-leaved and scrub forests, high-altitude pastures and bio-diversity of global significance. These resources meet the social, economic and environmental needs of the local people, Northern Areas and Pakistan by providing goods and services. The goods include timber, fuel wood, medicinal plants, food, wild animals and plants as well as their products and derivatives. The services include soil and water conservation, watershed function, bio-diversity, resource base for eco-tourism, amelioration of climate etc. The population of Northern Areas depends heavily on these resources.

Northern Areas Forest Department (NAFD) is mandated to conserve and sustainably use forests, range- lands and bio-diversity in Northern Areas. The department has made maximum efforts to accomplish this mandate but the mega changes in the socio-political environment in the past and the lack of matching capacities in the forest department could not halt the process of de-forestation, and degradation of forests, range lands and bio-diversity. The capacity of the forest department has been decreasing overtime. As a result, the challenge of maintaining optimal resource base, and conservation and sustainable use has been getting bigger and bigger.

One of the major consequences of this dilemma has been that the resources base for subsistence and economic development has shrunk, poverty has increased and the opportunities for future development have decreased.

Some of the obvious potentials such as promotion of farm forestry, sericulture, and use of forests for eco-tourism could not be harnessed because of the weak capacities of the NAFD. The changes in the socio-politico-economic scenario require new ways of looking things and doing the business of forest management, if it has to be sustainable. NAFD has been able to test successfully certain new approach such as community based management through external assistance but is handicapped to institutionalise and replicate these due to weak capacities. Joint Forest Management (JFM) and involvement of local communities in planning and managing the protected areas (PAs) are some of the concepts that provide hope for the future but these concepts could not be tested and promoted so far due to the same reason. This situation will not change if the current capacities are not enhanced.

It is, thus, important that NAFD is strengthened to match its capacities with the requirements of its mandate. This will need:

- m Restructuring of the department to enable it to focus on all aspects of its mandate and to perform efficiently to deliver. This would require a responsive structure that manages the various aspects of sustainable management of natural forests; conservation and sustainable use of bio-diversity including the species and habitats, especially PAs.; scientific and sound management of state

and community-owned range lands; forest-based eco-tourism; medicinal plants in the wild; community based management; and joint management of forest or PAs;

- m Appropriate and adequate human resource. The existing human resource requires beefing up and building its capacity. This would be both at the professional and technical staff levels.
- m Enhanced mobility through provision of new vehicles and maintenance of existing vehicles, which are currently out of order or in poor condition due to lack of funds for maintenance.
- m Office equipment such as computers, printers, fax machines and audio-visual equipment.
- m Field equipment and stores such as spotting scopes, binoculars, camping equipment, field gear etc.
- m Funds for travel to visit forests, communities etc.
- m Funds for maintaining offices and others logistic requirements.
- m Funds for activities, especially for external management review, and training and other capacity building activities.



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